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1924.

THE AGRICULTURAL SOCIETY OF TRINIDAD AND TOBAGO.

(FOUNDED 1894.)

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His Excellency

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Governor of Trinidad and Tobago.

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Proceedings of the Agricultural Society.

JANUARY, 1923.

EDITOR'S NOTES AND CLIPPINGS.

Sugar Prospects for 1923 :—From the "Louisiana Planter" of 6th January, 1923, we note that on entering the year 1923 the Sugar world has a carry-over from the end of the previous year of among the smallest number of tons of Sugar that has appeared in recent years. The world is faced by the fact that as compared with last January the carry-over into 1923 is about 1,300,000 tons less than the carry-over into 1922, which was 1,700,000 tons. Against the small carry-over we have according to Wellett & Gray's latest estimates, an estimated increase in the world's production of Sugar for 1922-23 crop of 422,000 tons over the crop 1921-22, the estimates being for 1921-22, 17,651,863 tons and for 1922-23, 18,074,521 tons. The consumption of Sugar in the World for 1922 is estimated at 18,400,000 tons against a consumption of 16,198,000 in 1921. If the rate of consumption of Sugar in 1922 be only maintained in 1923 a shortage of Sugar is apparent for the present year. The percentage of Sugar consumed in the United States based on the world's supply of Sugar has shown a very decided and marked increase over a number of years, reaching its highest percentage in 1922. The estimated

consumption in the United States is given at 5,500,000 tons. The increase in consumption is not confined entirely to the United States. Europe and the United Kingdom are recovering from the restrictions placed upon them by the War and are consuming a larger amount of Sugar per capita with indications favourable to a continuance of this increase in per capita consumption. During the year of 1922 the consumption of Sugar in the United States was markedly above 100 pounds per capita against a consumption according to Licht, the German Statistician, of 99 pounds in 1921-22.

The result of this increased consumption indicates that in 1923 the Sugar consumption of the world will have overtaken and passed the production. The sequence of this would be a more remunerative price for Sugar which is looked for during the present year.

The estimated Cuban Sugar crop, according to Messrs. Guma & Mejer is 4,193,500 tons for 1922-23 against less than 4,000,000 tons in 1921-22. It is estimated that Porto Rico and Hawaii will be under what they produced last year, but there are indications that there will be an increase from the Philippines.

Dr. H. C. Prinsen-Geerlig's estimate of the European beet sugar, exclusive of Russia, is 4,200,000 tons. The United States and Canada will probably turn out a beet crop of 800,000 tons, so this would bring the Cane Crop production of the world to about 13,000,000 tons. It is presumed these figures relate to short tons of 2000 lbs.

Results of Imperial Preference and Conditions of the Cacao Market :—It is interesting to watch the working of the reformed tariff, as shown in a table published by the "Statist," giving particulars of the clearances at the full and preferential rates of duty respectively of some of the more important articles upon which Preference is granted.

		Net Quantities Duty Paid for Home Consumption, 1922.		Proportion of Empire Goods To Total.	
		At Full Rate.	At Preferential Rate	Total.	%
SPIRITS	Gals.	1,352,000	1,763,000	3,115,000	56.6
TEA	lbs.	41,926,000	371,668,000	413,594,000	89.9
COCOA RAW	Cwt.	78,000	766,000	844,000	90.7
COFFEE	"	171,000	137,000	308,000	44.5
SUGAR RAW AND REFINED	"	20,288,000	7,594,000	27,882,000	27.2
MOLASSES	"	917,000	141,000	1,058,000	13.3
TOBACCO	lbs.	129,695,000	6,364,000	136,059,000	4.7

From these figures, it is clear that the preference of 4½ per cwt. that British Cacao is supposed to be benefitted by, is only in name and not in fact. Practically all the raw cacao imported into the U. K., of which 90.7 per cent. come from Colonies is more than required for local consumption and in the absence of competition, except between the Colonies themselves, the preference becomes nil.

In the face of numerous difficulties, in the way of bad crops, bad seasons, etc. with which the Cacao Industry of the Island has had to contend for the past three years, there is none so serious as the prevailing economic and political conditions which have been so adversely affected by the fluctuation of currency all over the world. The check given to consumption through this cause is well marked and such great consuming and manufacturing Centres as Germany, France, Switzerland, Belgium, Holland, Italy, Spain, have got a set back and many small chocolate manufacturers and large ones too, have been compelled to close down or to considerably reduce their output of chocolate through their lack of working capital and the great reduction in exports which in many cases amount to 70 per cent. of previous years. This may also be accounted for by the fact that wide circles of the population are prevented from purchasing chocolate products due, to their high prices. The disparity between the prices paid to the Agricultural producer and what the consumer pays is so great that it has attracted the British Government's attention and a strong Committee made up of eminent men in the field of Political Economy, has been appointed to investigate the causes, because English Agriculture is also affected in the same way.

(o)

CLAYING OF CACAO BEANS.

We consider that it is advisable to reproduce in this number of the Proceedings extracts of numerous letters which have been received from leading representative

Firms in the trade both in the United States and the United Kingdom, some of which were read at the Special Meeting of the Society on the 23rd November last :—

MESSRS. WALTER BAKER & CO. 

Dorchester, Mass.

May 31st, 1922.

We are, however, very glad to have the opportunity to repeat our feelings, as expressed from time to time in our correspondence and personal interviews with Messrs. G. C. Lee & Co., of your city. For many years it has been the duty of the writer to purchase raw materials for this Company. We have for many years been very favorable to Trinidad cocoa and have used it, as you probably know, to a very large extent in our business. We, however, have to regretfully say that the last few years the condition in which the cocoa has been shipped has been of such a nature that where we can substitute another cocoa for it, we have done so, although we would prefer the Trinidad if shipments were made satisfactorily.

Our further complaint has been about the "claying" of the cocoa. We are very careful not to express an opinion as to the development of flavor, but to say the least it is an absolute nuisance and we have stipulated from time to time to Messrs. Geo. C. Lee & Co. that we do not care to buy the "clayed" cocoa, even at time when we were actually in need of Trinidad cocoa. Clayed cocoa contains a covering which is not at all pleasant in the manufacture of goods and no matter how carefully this cocoa is handled, it is impossible to prevent a certain portion of the "clay" or "sand" from getting into the finished goods.

There has also been a great falling off in the quality of what we term "Firsts" or "Estates" cocoa. At one time these cocoas could be depended upon as to quality,

but of recent years the amount of what we term shims (thin shells) stems and undeveloped cocoa has appeared to such an extent that today on our shrinkage tests Trinidad Estates run from 2 to 3 per cent. higher than any other cocoas we are using.

COCOA AND CHOCOLATE MANUFACTURERS'
ASSOCIATION OF THE UNITED STATES.

June 9th, 1922.

If you will refer back to some of my former correspondence, you will find that our Association made a very strenuous complaint against clayed cocoa and which resulted in the Government passing a law that anybody that was found with any clay in their premises would be punished and I cannot for the world understand why this reprehensible habit has again become very common to some of the shippers. If it were not that I am leaving, I would be able to give this matter my personal attention but I feel convinced that if you will follow up this letter with another one to our Secretary, he will act on the recommendation of your correspondence with Mr. Stollmeyer.

PETER CAILLER KOHLER SWISS CHOCOLATE
COMPANY INC.,

131 Hudson Street,
New York,
July 7th, 1922.

Replying to your letter enclosing letter from Mr. A. V. Stollmeyer of Trinidad, we desire to say that we consider the use of clay, even in the form of so-called 'wash,' absolutely unnecessary and objectionable. Its use has always prejudiced us against Trinidad cocoa, because our

records for many years back show that we have a larger waste of Trinidad than any other kind of bean. We use a certain amount of Trinidad because of its reddish color, but use no more than we can help for the reason stated.

Of course it goes without saying that uniformity and clear definition of grades would be a great advantage to the Trinidad growers. In other words, a mixture of inferior cocoa with good cocoa, even in small quantity, damages the Trinidad industry, and in the long run will much more than offset the small financial gain in the first place.

HUYLER'S BONBONS CHOCOLATES.

18th Street and Irving Place,
New York,
July 7th, 1922.

I cannot endorse too heartily the stand taken by you in recommending the entire elimination of the use of clay. The biggest difficulty the manufacturer of cocoa and chocolate has to contend with is the question of obtaining cocoa beans which run true to sample and classification.

You are taking a big step in the right direction, and I am sure it will receive the hearty co-operation of all large users of cocoa beans in the States.

D. AUERBACH & SONS.

Eleventh Ave. 46th to 47th St.
New York,
July 8th, 1922.

The practice of using clay by the planters or handlers of Cocoa in the Island of Trinidad when prepared for shipping should be condemned in the highest terms, whether this clay is applied as a heavy layer over the Bean or only as a thin so-called clay wash. The addition of clay has only one motive that of fraud, whether it be for the purpose of adding weight. We have made it a

rule for a number of years past not to buy clayed Cocoa from anybody or at any price.

Regarding so-called "shop" cocoa, a strict rule should be put into effect forbidding the mixing of "shop" cocoa with regular Plantation or Estate cocoa. It would not be necessary to forbid the use or shipping of "shop" cocoa so long as this grade is packed, shipped and designated with the proper name all by itself.

IDEAL COCOA AND CHOCOLATE COMPANY.

39 Park Place,
New York,
July 19th, 1922.

Referring to your recent letter enclosing a copy of a letter regarding the improvement of Trinidad Cocoa, we wish to advise you that we have at all times refused to accept any clayed cocoa beans, as we do not consider the use of clay on cocoa beans as being legitimate in any sense, it being used to cover up defective beans and also to increase the weight.

There are other objections to clayed cocoa from a manufacturing standpoint which are not necessary to mention.

PAINES AND REID.

London,
28th June, 1922.

With reference to the preparation of Trinidad Cocoa, the use of clay is apt to have a lowering effect on the quality.

The question of using a light clay wash to make the outward appearance of all beans the same is really immaterial to us, as the kernel of the bean is always examined.

We have found with certain types of Trinidad Cocoa which are heavily clayed that owing to some mineral properties in the clay used, the roasting is made very difficult, for the effect of heat on this clay imparts a burnt flavour to the nibs.

CADBURY BROTHERS.

London,
June 30th, 1922.

From the point of view of the manufacturer I can see no advantage in the claying of Trinidad Cocoa. It gives the cocoa a uniform appearance which is pleasing to look at, but we have no evidence that claying produces a beneficial effect. It is said to act as a preservative it does not, however, under severe conditions prevent the cocoa from going mouldy. If it is intended to prevent the cocoa going grubby, we would point out that plantation cocoa from Grenada is not clayed and is quite as free from grubs or mould. We have no evidence that it preserves the aroma of cocoa. It has two objectionable features from the manufacturers' point of view. One is, that inferior cocoa by claying is sometimes given the external appearance of good cocoa. The second objection is that the buyers pays for cocoa and obtains clay, the clay on good class cocoa varying from 0.5-2.0 per cent. From these observations it will be evident that we should prefer to buy plantation cocoa unclayed.

ROYAL COCOA COMPANY.

Jersey City, N. J.
October 19th, 1922.

We have discontinued using the so-called Estate Trinidad Cocoa over ten years ago, because of the heavy claying, with which the beans were covered.

It was impossible in the process of removing the shells from the cocoa nibs, and, as a consequence, this clay would find its way into the finished chocolate product.

If Estate Trinidad Cocoa could be supplied with shells free of clay, we would be glad to take up its use again.

THE COCOABEAN IMPORTERS ASSOCIATION.

New York,

October 30th 1922.

As President of the Cocoabean Importers Association, Inc., and an importer of Cocoabeans for many years, I beg to submit my views in the hope that they will be of assistance and interest to you and your associates.

Trinidad Cocoa has for many years been slowly losing its popularity with the American manufacturers; many of the companies who formerly used large quantities have now discontinued Trinidad qualities altogether in their formulas, and others have reduced their consumption to the lowest possible point. In fact, if it were not for the friendly attitude of one of our largest and oldest manufacturers, and their buying agents, to Trinidad Cocoa, your merchants would find it impossible to sell their product in the United States to any extent.

These are definite statements, but I know you will have them confirmed by investigation in other directions. The fact that your merchants appear to overlook is; Trinidad Cocoa can now be dispensed with altogether by American manufacturers, which was not the case ten years ago when the supplies of other cocoas were not so freely obtainable. At present, Accras, Guayaquil and other grades have displaced Trinidad from being the market leader as in the past, to one of the least desirable grades.

Trinidad can be placed in front again but only by the co-operation of your local merchants to improve the quality and keep it up permanently. When this has been done, I feel sure many of the manufacturers will resume buying it in competition with other grades.

Personally, I consider that it would be a mistake to change the name of the present grades from "Estates" and "Ordinary." These are established and there is quite a little attachment to the old trade terms for sentimental reasons if for no other.

The United States is the logical market for Trinidad Cocoa and every effort should be made by your merchants to encourage business with our manufacturers.

The fact that only one large manufacturer is a consistent buyer of Trinidad "Estates" and "Ordinary" causes dealers to be very cautious in buying this Cocoa, as they know it cannot be resold freely. To bring a return of speculative interest, would appear to be of equal importance to re-establishing the quality in the good graces of the manufacturers. With these two factors again confirmed, the market would be considerably broadened and dull periods, when it is impossible to sell Trinidad Cocoa, except at considerable sacrifice, would rarely occur and Trinidad would be looked upon with the same favor as Accra, Sanchez, and other commercial grades.

H. O. WILBUR & SONS.

Philadelphia, Pa.,

October 18, 1922.

There is no doubt some of the Cocoa coming up has been entirely too heavily clayed, which has been a serious objection and should be corrected, although we would not care to take the stand that the government should entirely prohibit the use of Clay, as we were always under the

impression that where properly used it was a benefit of which they would be much better able to judge than ourselves.

The old Soconosco and La Chaguaramas Estates, we believed used the Clay process and produced the best beans on the Island is our reason for making this statement.

Naturally with the smaller crops we always have more or less complaint of possible inferiority, lack of proper fermentation and certainly complaints as regards the garbling, finding many small undesirable beans and considerable chaff, all of which are objectionable and in our opinion this would be a very much more important feature to prevent in the future, than the ordinary custom of claying as heretofore.

MARCONE & COMPANY, INC.

98 Front Street,
New York,
October 18th, 1922.

In reference to the use of claying Trinidad Cocoa Beans, we are heartily in accord with the Trinidad Department of Agriculture to stamp out this evil which has caused considerable trouble in this market.

The principal complaints from manufacturers using this grade of cocoa are:

First : They are paying for clay instead of Cocoa Beans.

Second : It causes considerable dirt and dissemination of fine dust throughout the factory.

Third : At times the clay disguises ordinary or unfermented beans to pass in our market as fine or Prime Estates otherwise known as fermented.

We feel as you do, that if the cocoa is graded and standardized, viz., "Fermented" and "Unfermented"

and eliminate the clay, it will be found that manufacturers will increase their purchases of this grade. As it is now we have quite a few manufacturers who, on account of the claying, will not purchase the Estates and oftentimes substitutes other grades in its place.

FRANK G. ALDEN, INC.

New York,
October 21st, 1922.

The abolition of the use of clay, in our opinion, is very necessary and should have been done many years ago. A light Clay, no doubt, preserves the quality more or less. However, while the use of clay is permitted, we believe the privilege will always be abused. Therefore, grades should be standardized, as you suggest, as Fermented and Unfermented, instead of Estate or Ordinary.

It is a well known fact in the trade, that the greater portion of the shipments that have arrived this year, sold and offered as Estates, have been nothing more than Ordinary and Estates mixed and clayed. Manufacturers have purchased Cocoa to arrive as Estates Trinidad to find on its arrival that the Cocoa does not come up to the grade.

Usually, when manufacturers buy Cocoa to arrive, they do so to cover future sales made of finished products. In the interval, the market may advance, and when goods are delivered, price may be considerably higher, and whereas the Cocoa may not be up to the standard of the grade, they hesitate to complain, because of the fact that the market is in their favor, and even so, when a complaint is made, it always reverts back to "usual good quality of the season."

This has the effect of making the manufacturers very cautious in purchasing this grade, and when they can possibly get away from doing so, they do. It is a known

fact that many manufacturers have now cut this grade from their formulas, and until such time as the grade is properly prepared, and clay abolished, we rather feel that consumption of this grade will decrease.

FROM SNYDER & WHEELER

New York,
October 18th, 1922.

There is no question, the sale of Trinidad Cocoa has, in many instances, been seriously interfered with, on account of the uncertainty as to the quality of the material the Buyers might expect to receive here. We are referring particularly to cocoa treated with clay or other compositions, which are seriously detrimental in the manufacturing of high class cocoa or chocolate products.

Many Manufacturers, in buying Trinidad Cocoa, emphatically stipulate that they want cocoa without any clay or other treatment. The reason for this is due to the fact that in manufacturing chocolate from cocoas that have been treated with clay there is always a certain amount of clay which eventually gets into the finished goods. This produces a gritty chocolate, and not at all desirable. In consequence a number of Manufacturers have refused positively to buy Trinidad Cocoa, fearing a result as above described.

The Writer personally sees no particular reason for having the name or term of Trinidad changed; i.e., 'Estates' or 'Good Ordinary,' but it certainly would be desirable to emphatically make it impossible to clay any Trinidad Cocoa sold.

Outside of certain grades of Venezuelan Cocoa—and these are becoming less and less each year—other qualities of cocoa have no clay treatment and Manufacturers buying such material know well that they are not going to have any trouble with having earth, ochre or clay in their manufactured goods. If the planters in Tinidad are

going to continue to allow treatment of cocoa with clay, they are going to decrease the sale of their product, and as soon as the Planters realize this fact the better off they will be.

GEORGE C. LEE & CO.

New York,
October 27, 1922.

We duly received your favor of the 17th inst., and were gratified to know that the Agricultural Department intended instituting measures to restore the good standards of Trinidad Cocoa, which for so many years were firmly established and highly regarded in our market.

Whilst the judgment of manufacturers should be final, we, as brokers, are vitally interested in the maintenance of the standards as affecting the marketability of Cocoa and have been cornered for some time past over the impairment of Trinidad qualities, which has provoked much complaint and dissatisfaction from the consuming trade and to our knowledge, in certain directions, brought about a curtailed use of that growth.

Moreover, we feel that the suggested classifications ("Fermented" and "Unfermented") would be inadvisable, if not really disadvantageous, in the sale of Trinidad Cocoa, for it does not seem any more necessary to use those rather misleading designations than obtain on "Estates" and "Grounds" Surinam and "Estates" and "Native" Ceylon, etc.

In order to re-establish the former high reputation and popularity of Trinidad Cocoa in this market, in our opinion, it would be necessary to more than merely dispense with, or restrict the use of, clay, which covers a multitude of faults, all well known to planters and shippers; therefore, needless to enumerate, but should be remedied and at the same time more care exercised in

excluding unripe, undeveloped and weathered beans and excessive waste matter, which does not appear in other good growths.

It is not necessary to go over the ground covered by the debate which took place at the Special Meeting. The report of the Cocoa Committee and the Minutes of the Special Meeting were printed in the December number of the Proceedings. Suffice to say that after the debate in the Agricultural Society and other representations that have been made, the Government considered it expedient to prohibit entirely the claying of Cacao and lost no time in introducing the Ordinance which passed the Council on the 15th day of December, 1922, and is in force since the 1st of the year.

By this Bill, it is an offence:

- (a) To add clay to any cocoa.
- (b) To be in possession of any clayed cocoa, except under certain specified conditions.
- (c) To sell, purchase or export any clayed cocoa.
- (d) In the case of a dealer in licensable produce under the sale and Produce Ordinance, 1921, to be in possession of any clay as defined by Clause 2 of the Bill.

Provision is made for the appointment of Inspectors, and power is given to such Inspectors and to members of the Constabulary Force to enter and search the premises of any licensed dealer, and also, in case of reasonable suspicion to enter and search any lands or premises and to seize any clayed cocoa which may be found.

Inspectors are further empowered, by Clause 10, to examine any cocoa intended for or in process of shipment and for this purpose to enter on board any vessel, to search and seize any clayed cocoa found therein.

The penal clauses provide for

- (a) A fine not exceeding £100;

- (b) In the case of a licensed dealer, the cancellation of his license, and
- (c) In any case, the forfeiture of any clay or clayed cocoa in respect of which any person has been convicted.

A general exemption is given to Clause 15 in the case of cocoa which has been imported into the Colony under the provisions of the Cocoa (import and export) Ordinance 1921; and a conditional exemption is given in the case of cocoa which has been clayed prior to the commencement of this Ordinance. (Clause 16.)

TRINIDAD and TOBAGO.

No. 43.—1922.

I ASSENT,

(L.S.)

S. H. WILSON,
Governor.

21st December, 1922.

AN ORDINANCE to prohibit the Claying of Cocoa.
(1st January, 1921.)

Be it enacted by the Governor of Trinidad and Tobago with the advice and consent of the Legislative Council thereof as follows :—

1. This Ordinance may be cited as the Claying of Cocoa (Prohibition) Ordinance, 1922.

2. In this Ordinance the expression—

“Clay” means the substance commonly known as “red clay” and includes any substance capable of increasing the weight of or suitable for coating or colouring cocoa beans, or which may be used to make a mixture suitable for coating or colouring cocoa beans, whether such substance is in its natural condition or is mixed with any other substance;

“Clayed Cocoa” means any cocoa beans to which any clay has been added;

“Persons” includes any individual and also any corporate or unincorporate body of persons;

“Licensed Dealer” means a dealer in licensable produce licensed under the Sale of Produce Ordinance, 1921;

“Inspectors” means an Inspector appointed under the provision of this Ordinance;

“Vessel” includes schooners, sloops, droghers, flats, punts, boats, canoes, barges, scows, corials, rafts or other craft;

“Constable” includes any member of the Constabulary Force.

2. Any person who shall add clay to any cocoa shall be guilty of an offence against this Ordinance.

4.—(1) Any person who has in his possession or custody or under his control any clayed cocoa shall be guilty of an offence against this Ordinance.

(2) For the purposes of this section any clayed cocoa in the possession or custody or in the control of any banker, agent, warehouseman or carrier shall be deemed to be in the possession of the owner or consignor of such cocoa. Provided that the onus of proving the true ownership of such cocoa shall be upon such banker, agent, warehouseman or carrier.

5. Any person who shall sell or purchase or export or who shall attempt to sell or purchase or export any clayed cocoa shall be guilty of an offence against this Ordinance.

6. Any licensed dealer on whose licensed premises or in whose house or building, being part of or contiguous to such licensed premises, any clay is found shall be guilty of an offence against this Ordinance.

7.—(1) It shall be lawful for the Governor from time to time to appoint one or more persons to be Inspectors for the purposes of this Ordinance.

(2) The names of any persons appointed under this section shall be published in the "Royal Gazette."

8.—(1) It shall be lawful for the Inspector or any constable without warrant to enter any premises in the occupation or under the control of any licensed dealer, and to search therein for clay or clayed cocoa and to seize any clay or clayed cocoa that may be found therein.

(2) The right of entry conferred by this section may be exercised between the hours of six in the forenoon and six in the afternoon of the same day.

9.—(1) If the Inspector or any constable shall have reasonable grounds for believing that an offence against any of the provisions of this Ordinance is being or has been committed on any lands or in any premises, or that any clayed cocoa is stored or kept upon any lands or in any premises, it shall be lawful for such Inspector or constable to apply to any Justice of the Peace for a search warrant and with such warrant to enter such lands or premises and also a house or building part of or contiguous to such lands or premises, and to search therein, and to seize and take away any clayed cocoa that may be found therein.

(2) The right of entry conferred by this section may be exercised at any time of the day or night and on all days including Sundays and public holidays.

10. It shall be lawful for the Inspector to examine any cocoa intended for or in process of shipment for export from the Colony, and for this purpose the Inspector shall have the right to enter on board any vessel in any harbour, bay, roadstead or river and to search with his assistants any and every part of such vessel, and to open any receptacle or bag containing, or which he has reason to believe contains, cocoa, and if upon such examination or search any clayed cocoa shall be found it shall be lawful for the Inspector to seize and take away such cocoa.

11—(1) Any clay or clayed cocoa seized under the powers contained in this Ordinance shall be conveyed to the nearest Constabulary Station or to such other place as the Inspector may direct, and the Inspector may give such directions as he may consider necessary for the removal thereto of such clay or clayed cocoa.

(2) On conviction of any person of any offence against this Ordinance in respect of any such clay or clayed cocoa, the same shall be forfeited and may be destroyed or otherwise disposed of in such manner as the Magistrate in his discretion may order. Such forfeiture shall be in addition to any punishment authorised by this Ordinance.

12. Every person who shall assault, obstruct or resist the Inspector or any of his assistants or any constable in the execution of their duties under this Ordinance, and every person who shall refuse or neglect to carry out any direction lawfully given by the Inspector under the last preceding section shall be guilty of an offence against this Ordinance.

13. All offences under this Ordinance shall be prosecuted, heard and determined before a magistrate, and the procedure in respect of such offences and of all matters incidental to or arising out of the prosecution of such offences shall be such as is laid down in the Summary Conviction Offences (Procedure) Ordinance, 1918.

14.—(1) Every person who shall be convicted of any offence against this Ordinance or any Regulation made thereunder, shall be liable to a penalty not exceeding one hundred pounds.

(2) Every person who shall aid, abet, counsel or procure the commission of any offence against this Ordinance or any regulation made thereunder shall be guilty of an offence against this Ordinance.

(3) If any licensed dealer shall be convicted of any offence against this Ordinance, the magistrate may, in

addition to any other penalty which he may be authorised to inflict, order the license of the offender to be forfeited and cancelled.

15. Nothing in this Ordinance contained shall be deemed to apply to cocoa which has been imported into the Colony under the provisions of the Cocoa (import and export) Ordinance, 1921. Provided that the onus of proving to the satisfaction of the Inspector that any cocoa has been so imported shall be upon the person alleging the same.

16.—(1) Any person who is, at the commencement of this Ordinance, in possession of any clayed cocoa shall within seven days make a return in writing of such cocoa to the Inspector, and shall furnish to the Inspector such particulars in regard to such cocoa as the Inspector may require.

(2) On receiving such return and particulars, the Inspector shall examine such cocoa and, if satisfied that such cocoa was clayed before the commencement of this Ordinance, give such person a certificate to that effect, and, notwithstanding anything in this Ordinance contained any cocoa in respect of which a certificate under this section has been given may be exported within a period to be specified in such certificate. Provided that on the expiration of the period specified in the certificate such certificate shall become void and of no effect.

17. The Governor in Executive Council may make Regulations for the better carrying out of the provisions of this Ordinance. All such Regulations shall be published in the Royal Gazette.

18. This Ordinance shall commence on the 1st day of January, 1923.

Passed in Council this fifteenth day of December, in the year of Our Lord one thousand nine hundred and twenty-two.

JOHN De NOBRIGA,
Acting Clerk of the Council.

GENERAL MEETING.

For want of a quorum, the Annual General Meeting of the Society convened for the 11th inst., having proved abortive notice was given that it had been postponed to Thursday, 18th inst. at 1.30 p.m.

Present :—W. S. E. Barnardo in the chair, Revd. H. H. Morton, Messrs. W. G. Freeman, A. V. Stollmeyer, Jas. Sween, J. Black, C. Cleaver, A. Herrera, G. C. Wyatt, S. Medford, W. Mills, C. P. Rojas, Lieut.-Col. J. H. Collins, W. C. Jardine, C. Fleming, E. A. Robinson, A. G. Hamlyn, E. Radcliffe Clarke, Captain A. A. Cipriani, Permaanud Pundit, Jaikaransingh, A. B. Carr, Wm. Nowell, F. Brown, L. Le Blanc, C. F. Wood and L. De Verteuil, Secretary.

Secretary's Report :—The Secretary read his report for the year 1922 which was as follows :—

To the President and Members
of the Agricultural Society.

In placing the annual account of the Society before your Committee of Management, it is my pleasure to state that the financial position of the Society is a good one.

The working of the year just closed, shows a credit balance of \$721.77 to the current account and \$2,286.88 in the Saving Department of the Colonial Bank, a total of \$3,008.65—The Expenditure for the year stands at \$2,738.57.

The excess of revenue over Expenditure is mainly due to the fact that no general Exhibition has been held since 1919 though over \$700 were voted in 1921 for District Agricultural Shows and for a grant in aid to the Tropical School of Medicine, on the special appeal of Lord Milner, who was then Secretary of State for the Colonies.

The question of holding an Exhibition in Port-of-Spain this year was considered by the Committee but owing to the great depression in all Agricultural products and to the financial condition of the Colony, the Members did not think the time propitious for voting a large outlay of money which such an Exhibition necessitated. The spending of grants-in-aid towards Local Shows and Vegetable Prize competitions was considered a more practical policy and one that would give better results by encouraging the Peasantry to grow more vegetables and cultivate fruits. With this end in view a sum of \$950 has actually been voted for a local show to be held this month in Tobago and one in St. Joseph in February, as well as a Vegetable Prize competition in the Savana Grande District, which is now an annual fixture and is doing much good to that large Agricultural part of the Island. If to this is added the estimated cost of \$350 for Pamphlet on Fruit Cultivation, the sum of \$1,300 will have to be drawn from the Reserve in the Savings Bank.

The cost of printing the Proceedings is always a high item of expenditure, it is lower this past year than the previous one. Sight has not been lost of the possibility of reducing this cost, but after interviewing the Managers of the different printing establishments of the City, I did not succeed in getting tenders and it does not seem practicable to reduce the cost to any appreciable extent. The present Printers, Messrs. Yuille's Printerie have been doing the work for many years and have given satisfaction and I am glad to say, that they have, this year, consented to certain reductions to come in force this month.

Taken on the whole, the general expenditure is lower than last year by \$781.64.

Five members died during the year, 15 resigned and 15 new Members were elected. On the 31st December, there were 160 Members on the roll. The subscriptions

were fairly well paid, though I regret to say there are still a few outstandings, in spite of my efforts to collect all arrears.

There are seven district Agricultural Societies affiliated to the Parent Society with a membership of about 450—The Windward District Agricultural Society of Tobago, The Savana Grande, The Naparima, The Tacarigua, are to be commended for their good work and should serve as examples to the others.

The Society held 12 general meetings, and one Special one during the year, with an average attendance of 23 Members. There were 4 meetings of the Management Committee, 3 of the Permanent Fruit Committee, 4 of the Cacao Committee and 4 of the Special Committee to consider the Local Manufacture of Chocolate; showing that much work has been done.

Many important matters relating to Agriculture were debated in these meetings. It is necessary in the first place to mention the interview with the Right Hon. Mr. E. F. L. Wood, Parliamentary Under Secretary of State for the Colonies, in connection with matters of primary importance relating to the Agriculture of the Island.

(2nd) The appointment of a permanent Fruit Committee and the decision to issue a special pamphlet giving concise direction for the cultivation of the best fruits, with a view of encouraging exportation and local consumption. This pamphlet is very shortly to be out of the hands of the Printers and nothing has been spared to make it useful and practical. In this connection I cannot refrain from mentioning the names of Messrs. R. S. Cunliffe and R. O. Williams for the trouble they have displayed in making the pamphlet interesting. It is estimated to cost about \$350 for 1,500 copies, of course it is hoped that a great part of the money will be recouped by the sale of the pamphlets.

(3rd) The local manufacture of Chocolate had the attention of the Society and thanks to the information obtained by Mr. A. V. Stollmeyer, who was Chairman of the Special Committee appointed for that purpose, a report was drawn and very useful data was imparted.

(4th) The question of devising means that would help in establishing mutual confidence between Factory Owners and Cane Farmers was debated, though it has not yet been firmly decided what step should be taken to bring in the desired end, the Director of Agriculture and Mr. G. C. Wyatt who represents the Farmers are hoping in the near future to succeed in getting that trust firmly established.

(5th) The alteration to the duty on Cacao imported into the United Kingdom resulted in a cable being sent to the Secretary of the West India Committee and the answers received which were all published in the Proceedings.

(6th) The two most important subjects : the Creation of an Agricultural Bank and the resolution recommending the Government to introduce legislation to render illegal the use of Clay on Cacao beans, are fresh in the minds of Members and need no comment. In this latter respect the thanks of the Society are due to Mr. A. V. Stollmeyer for drawing the able report which was adopted at the Special Meeting and to Mr. Majani for the information he obtained from Dealers in New York.

It is my pleasant duty to specially thank Mr. Freeman and the Staff of the Department of Agriculture on behalf of the Society for the interesting lectures and the practical papers which were published in the Proceedings on Fruit Cultivation, Diseases of Cacao, Cacao Thrips in San Thomé, Fermentation of Cocoa, Internal Parasites of Cattle, Conversion by top-working of old mangoes, orange and avocados into good trees, Kitchen Gardening, with reference to insects pests and common diseases and

last but not least of the pleasant day at River Estate seeing the practical and experimental work carried on there and the report read by Mr. Seheult.

The year just closed has also seen the opening of the Tropical College of Agriculture in which the Society has shown so much interest.

Before closing these remarks I must acknowledge the assistance I received from our President and for the able way he has conducted business of the meetings.

Mr. A. B. Carr moved the adoption of the report and Mr. E. A. Robinson seconded—this was carried.

Election of Office Bearers :—Mr. E. A. Robinson proposed the re-election of Mr. W. S. E. Barnardo as President for the present year and Rev. H. H. Morton seconded. This was put to the vote and Mr. Barnardo was unanimously elected.

After Mr. Barnardo had accepted his re-election and thanked the Members for the honour done him, he proposed that Mr. H. Warner be elected Honorary Vice-President, in succession to the late Mr. Edgar Tripp. He thought this was due to Mr. H. Warner in appreciation for the good work he had done for the Society and for the whole of the Agricultural community. Mr. E. A. Robinson seconded and endorsed the remarks of Mr. Barnardo. Mr. Warner was unanimously elected.

Mr. W. C. Jardine moved that Mr. A. B. Carr be elected Vice-President of the Society for the year, seconded by Rev. H. H. Morton and carried unanimously. Mr. Carr returned thanks for his election.

Members of Committee :—By the Agricultural Society Ordinance 1919, two Members representing the Sugar Industry, two Members representing the Cacao

Industry and two Members representing Other Industries shall retire in order of seniority of election, but shall be eligible for re-election.

Sugar :—It was moved by Mr. A. B. Carr, that Mr. J. Black be re-elected a Member to represent the Sugar Industry, seconded by Mr. E. A. Robinson and carried.

Rev. H. H. Morton moved that Mr. A. G. Jones be elected in the place of Mr. Forbes Todd, seconded by Mr. G. C. Wyatt and carried.

Cacao :—Rev. H. H. Morton proposed the re-election of Captain Gooden-Chisholm, seconded by Mr. A. B. Carr and carried.

Rev. H. H. Morton moved that Mr. C. Fleming be re-elected, seconded by Mr. J. C. Jardine and carried.

Other Industries :—Mr. A. B. Carr moved that Mr. S. Medford be elected in the place of Dr. Lassalle seconded by Mr. E. A. Robinson and agreed to. Mr. C. Cleaver moved that Mr. A. A. Sobrian take the place of Sir N. Lamont, seconded by M. J. Black and agreed.

Correspondence :—The Secretary read a letter from Mr. Jas. Mungal, and one from the Secretary of the British Producers' Organization.

With reference to Mr. Jas. Mungal's letter asking that the motion standing in his name be postponed to the next Meeting That this Society is of opinion that the time has arrived when the Government should consider the stability of labour and that the present Immigration Department having no more ingress of East Indians Immigrants be made to undertake the supervision and protection of labour in the Colonies of Trinidad and Tobago." Mr. C. Fleming moved that leave be not

granted, Mr. E. A. Robinson was also of that opinion and thought there was no necessity for the motion. Mr. A. V. Stollmeyer rose to a point of order and was supported by Captain A. A. Cipriani, Messrs. E. Radcliffe Clarke, and G. C. Wyatt. On the question of postponement being put to the vote, it was decided that the motion should be postponed.

British Empire Producers' Organization :—The letter from the Secretary of the B. E. P. O. was to the effect that Mr. P. Abel had found it possible to serve as representative of the Society, on the Council of the Empire Producers Organization and the Secretary agreed as to the importance of obtaining the assistance of a Gentleman particularly interested in Cacao and if the Society could suggest any body in London who they think would be suitable, he would be happy to nominate him as a co-opted Member of the Council.

Mr. A. B. Carr proposed Mr. E. A. Robinson as a very desirable person to take the interest of Cacao Producers, especially as he often found himself in London.

Mr. Robinson said he preferred not to be appointed.

Mr. A. V. Stollmeyer proposed Mr. Harold Hamel Smith, Proprietor and Editor of "Tropical Life" urging that they could not get a better man resident in London. Mr. G. C. Jardine agreed with Mr. Stollmeyer. Messrs. Radcliffe Clarke and Lieut.-Col. J. H. Collens were also of the same opinion.

Mr. Robinson having intimated that he might not always be present in London to attend the Meetings, he agreed that Mr. H. Hamel Smith would be the best representative to take the interest of Cacao Producers.

On the name of Mr. Hamel Smith being put to the vote, he was unanimously selected and the Secretary was directed to inform the British Empire Producers' Organization accordingly.

The meeting rose after the President had informed Members that Mr. Freeman had promised that one of the officers of the Agricultural Department would read a paper at the next meeting.

L. DE VERTEUIL,
Secretary.

Confirmed :

W. S. E. BARNARDO,
President.

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COMMITTEE MEETING.

A Meeting of the Committee of Management was held in the Council Chamber on Thursday 11th January 1923 at 10 a.m.

Present :—W. S. E. Barnardo in the chair, Messrs. A. B. Carr, J. Black, W. G. Freeman, W. C. Jardine, A. V. Stollmeyer, Captain Gooden-Chisholm and L. De Verteuil Secretary.

Before proceeding with the business of the day the Secretary submitted the draft of the yearly report he proposed to read at the General Meeting. After certain amendments had been recommended, it was accepted.

Quarterly and Yearly Accounts :—The Annual account had been circulated before the Meeting and the quarterly account to 31.12.22 was laid on the table and examined by Members. After they had been approved they were signed by the President and ordered for Audit.

Galvanized Sheets, Ribs and Uprights :—A letter was received from Mr. Fred Grant, Hon. Secretary of the Queen's Park Cricket Club informing the Committee that he had returned 154 galvanized sheets, and 173 iron ribs and uprights, which had been loaned to the Q.P.C.C.—they were stored under the Princes Buildings with the other materials. Mr. Grant stated in his letter, that there was a balance of 21 sheets and 2 uprights to be accounted for and as similar sheets cannot be obtained locally and would have to be imported, he would very much appreciate permission to pay a reasonable figure, rather than replace the missing sheets.

The Committee decided to accept the offer and thought that not more than 20 per cent. on the value should be allowed for depreciation. The Secretary was authorized to settle on that basis, after obtaining a proper valuation, based on the gauge of the galvanized iron.

Bird Cages :—The Secretary reported, that among the materials belonging to the Society that had been counted, sorted and packed under the Princes Buildings, he found some difference, as regards the number of Poultry Cages. In 1920 these cages were left at the Government Farm after the Exhibition that had been held there. He had been in correspondence with the Acting Manager of the Farm on the subject and was awaiting a reply from Mr. McInroy, who had only recently returned to the Colony.

Fire Policy :—The Secretary informed the Committee that the premium for insuring the books and office furniture against loss by Fire in the Commercial Union Assurance Co. was due and amounted to \$99.00. It was considered advisable to reduce the Policy to £200, instead of £300; this was agreed to.

Book-Case and Cupboard :—The Secretary was instructed to have removed from Messrs. Tripp's office to the Society's office at 5 Chacon street a book-case and

some papers which belonged to the Society. The Secretary informed the Committee, that would be done at a cost of \$25.00, which was approved.

Repatriation of East Indian Immigrants :—A letter from the Acting Secretary of the Chamber of Commerce on the above subject which had been postponed from the last Committee Meeting was read. As the matter had already been communicated to the Government, it was not considered necessary to take any further steps.

Lecture on Agriculture Subjects :—Mr. W. G. Freeman, Director of Agriculture wrote offering, with the assistance of the officers of the Department, to contribute a series of lectures every alternate month, as was done in 1922. His kind offer was accepted; the first lecture to take place in February.

L. DE VERTEUIL,

Secretary.

Confirmed.

W. S. E. BARNARDO,

President.

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REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

FYZABAD.

The regular monthly meeting of the Society was held at the Fyzabad school-house on the 5th December, 1922.

Present :—Messrs. H. M. Meaden, in the chair, J. A. Pinder, Ramcharan, Maraj, N. P. Gour, W. Briglal, F. Bhola, W. Dubary, A. Havelock, A. Mohamed, S. Mohamed, J. Koheran, Gangabissoon, Maharaj, Bhagratee, Maharaj, Bholaran, Rambajan, C. Goberdhan, O. Sumesar,

C. Bissoon, C. Niamath, J. Mahabir, R. O. Williams, S. M. Harnarayan, Hon. Sec. and eight visitors.

The minutes of the last meeting were read and confirmed.

The following Gentlemen were elected members of the Society: J. A. Pinder, Suthan, Mathura, Maraj, and Bhagratee Maraj.

Mr. R. O. Williams delivered a very interesting lecture on fruit culture. A vote of thanks was moved to him by Mr. H. Meaden, and seconded by N. P. Gomes.

There being no further business, the meeting arose at 4.30 p.m.

SAVANA GRANDE.

The first general meeting of the Society was held at the Court House on Thursday 4th January, 1923, when the following were present.

Present :—Mr. G. A. Jones, President in the Chair, Capt. C. A. B. Foster, Capt. R. C. Gooden-Chisholm, Capt. Mark S. Moody-Stuart, Revs. J. C. MacDonald, and J. N. Saunders. Messrs. D. Mahabir, Vice-President, G. C. Wyatt, Pargar Singh, O. McLean, E. Phillips, S. Ryan, J. H. Dubé, J. Briglalsingh, S. Garcia, T. Budasing, (Agricultural Adviser), Jules Mahabir, Walter Scott, G. H. Nunez, H. S. Huggins, Nathaniel Gazee, Jno. David, Jas. Titus, L. Sinkia, (Assistant Secretary) and M. B. Collymore (Honorary Secretary).

After the confirmation of the minutes of the last meeting the following gentlemen were elected to membership: Mr. Bruce Hobson proposed by Mr. G. C. Wyatt, seconded by Capt. Chisholm, and Mr. Martin Malden proposed by Mr. G. A. Jones seconded by Mr. Wyatt.

Correspondence :—(a) Letter dated 22nd December 1922 was read from the Secretary of the Parent Society

to the effect that it was not possible to forward cheque for \$150.00 for the Vegetable Competitions before the New Year and thanking the Secretary for the minutes of the last meeting for the "Proceedings."

(b) Acknowledgment by Acting Colonial Secretary of the Resolution forwarded on the 18th ultimo.

Annual Report :—The Annual Report was read and adopted, after which the chairman thanked the Secretary for his services during the past year, and especially for the Report.

Election of Officers :—The following officers were then elected: Capt. Mark S. Moody-Stuart, President; Mr. David Mahabir, Vice-President; Mr. H. P. C. Strange, Hon. Vice-President; Mr. G. A. Jones, Secretary and Treasurer; Mr. M. B. Collymore, Assistant Secretary and Treasurer and Capt. R. C. Gooden-Chisholm, Delegate to the Parent Society.

After thanking the Society for electing him to the Presidency, Capt. Stuart conducted the business of the meeting.

The following were then nominated to serve on the Committee of Management:—C. A. V. Forster, Capt. R. C. Gooden-Chisholm, Rev. J. N. Saunders, Messrs. G. C. Wyatt, G. H. Nunez, C. P. Rojas, Jules Mahabir, E. P. Phillips, Pargar Singh.

Motions :—Mr. G. A. Jones moved: "That meetings be held quarterly instead of monthly." He said that meetings had been very poorly attended and the Agenda was seldom a full one. He thought if meetings were held less often and an interesting Agenda arranged it would be to the interest of the Society.

Mr. Wyatt seconded the motion.

Mr. Dubé moved as an amendment that meetings continue monthly. He urged that if meetings were held quarterly, members would lose interest and meetings would be poorly attended.

Mr. Garcia seconded the amendment, which upon being put to the vote was carried.

Mr. Wyatt moved: That the meeting be the first Tuesday of the month instead of the first Thursday." This was seconded by Capt. Chisholm who pointed out that this arrangement would allow resolutions passed at one meeting to be in time for the next meeting of the Parent Society, whereas in the past they had to be detained a month. This was unanimously carried. The Secretary was instructed to get permission for the use of the Court House on the first Tuesday of the month and to inform the Parent Society of the change. At this stage Messrs. Wright and Cook joined the meeting.

Capt. Chisholm suggested that they should not confine the meetings to the Court House; but they should meet sometimes on the Bande l'est Road or on the Moruga Road at some school-house, so as to arouse interest in those districts. He also advocated frequent field meetings.

Mr. Nunez moved a vote of thanks to the ex-President for his services in the past year, which was seconded by Mr. Dubé, and acknowledged. The Secretary was asked to record the same in the minutes.

Mr. Wyatt asked the ex-President for information re the Vegetable Depot. He stated that the Railway Manager had turned down their recommendation of a site, and the selection of a new site was still under consideration. As soon as this was settled, the Director of Agriculture would give them permission to start building operations.

Mr. Jones then invited members to a field demonstration for next meeting, first Tuesday in February, at the Cane Farmers' Demonstration plot near the Golconda Crossing, where they would see the results of various experiments in yam cultivation. The demonstration would be under the supervision of the Agricultural Adviser.

This was heartily agreed to and the meeting terminated.

WINDWARD (ROXBOROUGH) TOBAGO.

The Secretary,
Agricultural Society,
Trinidad and Tobago.

Sir,—Re the recent Show held by the above-mentioned Society on the 24th January I have the pleasure to forward for the information of the Parent Society the following list :—

1.—The Show was held on Wednesday 24th January 1923, under the distinguished patronage of His Excellency, Sir Samuel Herbert Wilson, K.C.M.G., K.B.E., C.B., R.E., Governor.

It was opened by His Excellency at 2 p.m.

2.—There were present His Excellency and Lady Wilson and party, L. J. Sorzano Esq., Warden, W. G. Freeman Esq., W. S. E. Barnardo Esq., together with all or nearly all the members of the Executive and Auxiliary Committees.

3.—Exhibits of a very high quality and quantity were shown from almost all parts of the Island. It was unfortunate that at the very last moment the lorry bringing exhibits from Scarborough and Mt. St. George,

broke down; and thus prevented exhibits from these two very large centres, (although a part of the Scarborough's Exhibits reached) from coming to the Show.

The Needlework, Handicraft and Flowers, which were shown, as additions to the Prize List this year, did a great deal of credit to the Exhibitors.

4.—The Show took place on the Roxborough Recreation Ground, Roxborough Estate; and for this conveniently large place, the Society is indebted to Mrs. R. B. Archibald who kindly put the area at the Society's disposal.

Very spacious buildings of bamboo and coco-nut branches were erected. The main tent, in the centre of the grounds, for holding exhibits, was 150 ft. by 50 ft., and comprised of six tables, each 150 ft. by 2 ft., with a passage between each table.

The planning and laying out of the grounds was done by Messrs. E. B. Smith and Kenneth Reid and other members of the Auxiliary and Executive Committees. The grounds presented a very fine and regular appearance; and for this very good work, the Society is indebted, principally, to these two gentlemen.

The whole of this area was filled with exhibits, there was no idle space.

The number of animals were so many that the stalls provided for them proved to be inadequate. Many of them, the smaller stocks, in particular, had to be tied along the enclosures; and many were refused, being too late, and much to our regret.

5.—Speeches were delivered by His Excellency, Rev. E. Pilgrim, Mr. J. B. Murray and Mr. W. G. Freeman.

A vote of thanks was accorded His Excellency by Mr. W. S. E. Barnardo. seconded by the Secretary, F. J. B. Henry.

6.—The Police Band was in attendance.

7.—The Society owes a debt of gratitude to the following Gentlemen :—Rev. E. Pilgrim, Chairman, J. B. Murray Esq., Deputy-Chairman, A. Jones Esq., Vice-Chairman, Messrs. R. S. Reid, J. W. Piteairn, F. D. Davies, A. M. Skinner, W. Rodriguez, R. Jack and C. Jack; and also to the following Ladies :—Mrs. J. B. Murray, Mrs. E. Smith, Mrs. W. Rodriguez, and Miss Marjorie Smith, for their very hard work to make the Show the success that it has been.

Financial :—The funds received were as follows :—

Parent Society	\$ 500.00
Director of Education for Education Department	48.00
General Subscriptions	337.41
	<hr/>
	\$ 885.41
	<hr/>

EXPENDITURE.

Prizes	\$ 542.95
Building	142.71
Printing	92.77
Refreshments	34.33
Sundries	72.65
	<hr/>
	\$ 885.41
	<hr/>

9.—Attached is a list of the Prize-winners of the various Sections.

Signed on behalf of the Committee.

JOHN B. MURRAY, Deputy Chairman,

F. J. B. HENRY, Hon. Secretary.

7.2.23.

PRIZE WINNERS.

SECTION A.

First :—John King; Samuel Bernard; Angelo Hector; James McPherson; Archibald Arthur; Thomas Balfour; John Roy; E. Moore; Esau Benjamin; Newton Trotman; Leopold Alfred; A. Spencer; L. A. Peters; James Richards; Mrs. Plageman; Robert Douglas; William Sterling; Eva Joseph; Robert Clarke; Samuel Spencer; James Richards; James Arthur; John King John Fraser; L. Adams; James Wharton; Cecelia Melville; Annie Bain, L. Douglas; George Douglas.

Second :—S. McEwen; Rev. Gill; Philip Orr; Samuel Young; C. H. McPherson; Charles Clarke; William Blakely; Charles Clarke; R. Bascom; John Wharton; James Richards; Frederick Dann; Charles Tobias; Philip Caruth; Michael Duke; Henry Roberts; A. M. Skinner; Frederick Dann; Albert Blackman; Boxill Hamilton; Doris Caruth; Chas. Phillips; Cornelius Nimblett; L. Alleyne.

Special Prize :—Elizabeth Connor.

SECTION B.

First :—Joseph Hercules; Philip Orr; James Elliot; William Caruth; Leoni Hercules; Louisa Fraser; H. Fraser; Myrah Hazell; Jas. Douglas; Myrah Hazell; Alb. Osborne; Hazel Fraser; Hazel Fraser; L. Allen; J. Bowlds; Calvin Edwards; Daniel Duke; Fred. Bonas; Wilfred Melville; Hazel Fraser; Newton McLeod, Charity Melville; A. B. Smart; Geo. Duke; S. Price; Lucas Orr; Robert Douglas; William Alleyne; Leofry Hercules; Hazell Fraser; Jane Brooks; J. Bowlds; Cornelius Murphy; May Robinson.

Second :—Mark Grandison; James Richards; Ellis Gray; Philip Orr; A. Des Vignes; C. H. Dann; Harold Brooks; W. Rodriguez; Hazel Fraser; Fred Fraser; Ruth Morris; Louisa Fraser; Hazel Fraser; P. McEwen; Meshack Morton; Obadiah Duke; Robert Caruth; Mabel Roy; Albert Callendar; Cleophas Orr; Jas. Robinson; Charity Melville; Marie Daniel; M. Grandison; Sylvia Douglas; Samuel Bernard; Daniel Duke; L. Hercules; H. Bernard; E. Pope; L. Alleyne; H. Fraser; Obadiah Duke; Mrs. Douglas.

Special Prize :—J. Roberts.

SECTION C.

First :—Hazel Fraser; J. C. Alleyne; M. Grandison; Jno. Davidson; Hazel Fraser; H. S. Adams; A. Des Vignes; Chas. Patrick.

Second :—E. Derrick; C. Edwards; Louisa John; Hazell Fraser; Chas. Patrick; Ruth McLeod; Dick Des Vignes; Chas. Pilgrim.

SECTION D.

First :—Flo. Clarke; M. McKenzie; A. M. Skinner; G. Agard; C. H. Dann; Wilfred Melville; Ernest Arthur; C. H. Dann; Timothy Morgan; E. L. Derrick; Jane Brooks; L. Allen; Leone Hercules Lefroy Hercules.

Second :—M. McKenzie; W. E. Murray; C. H. Dann; A. Des Vignes; C. Wilman; R. Martin; S. Nicholson; Cyrenius Clarke; James Beckles; Philip Melville; A. Des Vignes; L. Allen.

SECTION E.

First :—H. S. Adams; Alvirah Davidson; L. Andrews; Jno. Fraser; Euginia Richardson; Jno. Fredericks; Jno. Fredericks; E. Meanwell; S. Melville; Geo. Williams; Allan Davidson; Olivia Manning; Leoni; Hercules

Evellyn Skinner; Hannah Duncan; Hazell Fraser; W. E. Murray; Peter McClachie; Nathaniel Holder; Nathaniel Holder; Albert Frith; Leoni Frith; Dublin Murphy; Hazel Fraser.

Second :—P. A. McEwan, Cecelia Melville; Cecelia Melville; Chas. John ; Jno. Frederick; Quinten Wolfe; Chas. Campbell; Shadrack Melville; Jno. Frederick; Geo. Hazell; Leoni Hercules; Ethel Arthur; Olive Skinner; Mrs. F. D. Davies; R. McConny; Rebecca McConny; A. Richardson; Jno. Fredericks; Philippa Johnson; Simeon Clarke.

SECTION F.

First :—Z. Warner; Mrs. E. Meanwell; Ernest Arthur; Leffroy Hercules; Miss Meanwell; Claudine Roberts; C. Joseph; Jas. Benjamin; Fred. Titus; Mrs. L. A. Peters; Jane Wharton; Mrs. F. D. Davies.

Second :—Cecelia Melville; Mrs. F. D. Davies; Moriah McLeod; Ernest Arthur; Mrs. E. Meanwell; W. H. Spencer; H. Fraser; D. Bruce; Mrs. F. D. Davies; H. S. Adams; Thos. Bardeen; Charity Melville; Antony Charles.

SECTION G.

First :—Mrs. S. Richardson; Miss Marjorie Clarke; Miss E. Ferreira; Miss L. Allen; Miss E. Ferreira; Miss E. Ferreira.

Second :—Miss Alexandrina Davidson; Miss Philippa Johnson; Miss V. de Souza; Miss Ina Lord; Miss H. Thomas.

SECTION H.

First :—Cecelia Melville; Margaret Brooks; Cecelia Melville; Clara Robinson.

Second :—Olga Robinson; Wilfred Blackman.

SCHOOLS.

SECTION A.

First :—Sweet Potatoes: Moriah Moravian; Yams: Moriah Moravian; Ochroes: Delaford R.C.; Table Beans: Moriah Moravian; Black-eye Peas: Nil; Tomatoes: Nil; Melongenes: Moriah Moravian; Turnips: Ebenezer Wesleyan; Carrots: Ebenezer Wesleyan; Chive Ebenezer Wesleyan; Eschalottes: Ebenezer Wesleyan; Cabbages: Moriah Moravian; Lettuce: Moriah Moravian; Forking: St. Pauls' E.C.; Layering: Roxboro E.C..

Second :—Sweet Potatoes: Ebenezer Wesleyan; Yams: Ebenezer Wesleyan; Ochroes: Moriah Moravian; Table Beans: Ebenezer Wesleyan; Black-eye Peas: Moriah Moravian; Tomatoes: Moriah Moravian; Melongenes: Nil; Turnips: Nil; Carrots: Moriah Moravian; Chive: Moriah Moravian; Eschalottes: Moriah Moravian; Cabbages: Nil; Lettuce: Ebenezer Wesleyan; Forking: Ebenezer Wesleyan ; Layering: Goodwood Wesleyan.

SECTION B.

First :—Hemming: St. Paul's E. C.; Seaming and felling: Delaford R.C.; Setting in gathers: Roxboro E.C.; Button Hobing : Roxboro E.C.; Darning: Ebenezer Wesleyan; Patching: Roxboro E.C.; Stocking Mending: Ebenezer Wesleyan; Gusseting: St. Paul's E.C.; Embroidery Initial: Ebenezer Wesleyan.

Second :—Hemming: Roxboro E. C.; Seaming and felling: Ebenezer Wesleyan; Setting in gather: Delaford R. C.; Button Hobing: Delaford R. C.; Darning: Roxboro E. C.; Patching: Belle Garden E. C.; Stocking Mending: Roxboro E. C.; Gusseting: Belle Garden E. C.; Embroidery Initial: St. Paul's E. C.

To same date 1922	..	..	5,118,592	„
„ „ 1921	..	..	1,634,187	„
„ „ 1920	..	..	11,397,654	„
„ „ 1919	..	..	8,128,361	„
„ „ 1918	..	..	1,802,205	„
„ „ 1917	..	..	6,900,700	„
„ „ 1916	..	..	5,085,123	„
„ „ 1915	..	..	7,406,433	„
„ „ 1914	..	..	8,151,685	„
„ „ 1913	..	..	3,854,745	„
„ „ 1912	..	..	10,757,066	„
„ „ 1911	..	..	5,848,611	„
„ „ 1910	..	..	9,386,702	„
„ „ 1909	..	..	9,451,141	„
„ „ 1908	..	..	7,986,002	„

London Quotations for Ordinary:—

1st January per cwt.	..	..	60/—62/—
3rd „ „ „	..	..	60/—63/—
9th „ „ „	..	..	58/—60/—
31st „ „ „	..	..	58/—60/—

To same date 1922	..	..	54/—57/—
„ „ 1921	..	..	75/—67/—
„ „ 1920	..	..	128/—130/—
„ „ 1919	..	..	90/—
„ „ 1918	..	..	97/—
„ „ 1917	..	..	76/—78/—
„ „ 1916	..	..	94/—90/—
„ „ 1915	..	..	76/—69/—
„ „ 1914	..	..	66/—62/—
„ „ 1913	..	..	71/—69/—
„ „ 1912	..	..	62/—61/—
„ „ 1911	..	..	56/6—61/—
„ „ 1910	..	..	54/6—55/—
„ „ 1909	..	..	61/—59/—
„ „ 1908	..	..	61/—

New York Quotations :—

1st January per lb.	..	..	10 3-8c.
31st " " "	..	..	10 3-8c.
At same date 1922	..	..	9c. — 9¾c.
" " 1921	..	..	12c — 11¼c.
" " 1920	..	..	20c. — 21½c.
" " 1919	..	..	15½c.—17¾c.
" " 1918	..	..	17¼c.—17¾c.

SUGAR.

Shipped for the Month of January, 1923.

To all countries	..	..	425,603 "
To same date 1922	..	..	27,026 "
" " 1921	..	..	449,926 "
" " 1920	..	..	565,528 "
" " 1919	..	..	278,327 "

London Quotations for Demerara Crystals:—

1st January per cwt.	..	..	44/6—46/—
20th " " "	..	..	44/—45/6
29th " " "	..	..	45/—46/—
30th " " "	..	..	45/—46/—
To same date 1922	..	..	38/— —42/—
" " 1921	..	..	124/9
" " 1920	..	..	66/— —106/—
" " 1919	..	..	57/—
" " 1918	..	..	46/9
" " 1917	..	..	40/1½—43/1½
" " 1916	..	..	29/8 —35/3
" " 1915	..	..	26/9 —28/—
" " 1914	..	..	14/— —14/6
" " 1913	..	..	18/6 —16/9
" " 1912	..	..	18/9 —21/—
" " 1911	..	..	15/— —15/6
" " 1910	..	..	16/3 —15/3
" " 1909	..	..	17/— —16/—

New York Quotations, Crystals:—

1st January per 100 lbs.	..	5.65
4th " " " "	..	5.59
5th " " " "	..	5.53
8th " " " "	...	5.46
9th " " " "	..	5.40
12th " " " "	..	5.34
16th " " " "	..	5.28
17th " " " "	..	5.21
31st " " " "	..	5.21
At same date 1922	.. ..	3.39—3.26
" " 1921	.. ..	5.31—4.89
" " 1920	.. ..	7.28
" " 1919	.. ..	No Quotation.
" " 1918	.. ..	6.50—6.00 ½

MOLASSES.

Shipped for the Month of January, 1923.

To all countries	.. ..	16,000 gals.
To same date 1922	.. ..	19,600 "
" " 1921	.. ..	8,080 "
" " 1920	.. ..	106,662 "
" " 1919	.. ..	50,376 "

RUM.

Shipped for the Month of January, 1923.

To all countries	.. ..	588 "
At same date 1922	.. ..	442 "
" " 1921	.. ..	15,661 "
" " 1920	.. ..	4,412 "
" " 1919	.. ..	24 "

COCONUTS.

Shipped for the Month of January, 1923.

To all countries	..	..	406,170 nuts.
To same date 1922	..	..	1,337,075 „
„ „ 1921	..	..	735,576 „
„ „ 1920	..	..	2,029,500 „
„ „ 1919	..	..	1,254,733 „
„ „ 1918	..	..	329,775 „
„ „ 1917	..	..	789,285 „
„ „ 1916	..	..	645,325 „
„ „ 1915	..	..	692,954 „
„ „ 1914	..	..	933,475 „
„ „ 1913	..	..	227,710 „
„ „ 1912	..	..	729,930 „

COPRA.

Shipped for the Month of January, 1923.

To all countries	..	..	708,475 lbs.
To same date 1922	..	..	223,600 „
„ „ 1921	..	..	726,200 „
„ „ 1920	..	..	344,100 „
„ „ 1919	..	..	154,800 „
„ „ 1918	..	..	711,342 „
„ „ 1917	..	..	504,288 „
„ „ 1916	..	..	287,892 „
„ „ 1915	..	..	317,708 „
„ „ 1914	..	..	59,347 „
„ „ 1913	..	..	97,120 „
„ „ 1912	..	..	118,415 „

RUBBER.

Shipped for the Month of January, 1923.

To all countries	..	..	Nil.
To same date 1922	..	..	Nil.
" " 1921	..	..	Nil.
" " 1920	..	..	5,075 "
" " 1919	..	..	4,301 "
" " 1918	..	..	3,799 "
" " 1917	..	..	1,164 "
" " 1916	..	..	Nil.
" " 1915	..	..	Nil.
" " 1914	..	..	105 "
" " 1913	..	..	Nil.
" " 1912	..	..	Nil.

ASPHALT.

Shipped for the Month of January, 1923.

To all countries	..	..	10,669 tons.
To same date 1922	..	..	6,022 "
" " 1921	..	..	11,489 "
" " 1920	..	..	7,432 "
" " 1919	..	..	9,922 "
" " 1918	..	..	6,878 "
" " 1917	..	..	10,014 "

OIL.

Shipped for the Month of January, 1923.

To all Countries	..	..	8,722,386 gals.
To same date 1922	..	..	2,387,676 "
" " 1921	..	..	2,241,534 "
" " 1920	..	..	3,626,263 "
" " 1919	..	..	5,969,063 "
" " 1918	..	..	1,321,248 "
" " 1917	..	..	2,212,034 "

Rainfall for January, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		ERIN		KING'S BAY TOBAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1	04	...	...
2	28	...	...
3	...	12	...	13	...	70	...	95
4	...	45	...	93	...	41	...	29
5	06	...	...	...	...
6
7	10
8	...	52	...	23	...	...	...	62
9	...	68	...	02	...	10	...	31
10	22	...	...	...	70
11	...	05	...	...	...	19	...	70
12	...	08	...	36	1	90	...	70
13	49	...	...	...	31
14
15	03	...	...	...	...
16	20
17	11	...	23	...	03
18	...	03	...	01	...	...	...	12
19	...	41	...	34	...	34	1	42
20	...	17	...	69	...	10	...	70
21	36	...	...	...	...
22	09	...	...	...	...
23	02	...	11	...	...
24	05	...	06	...	...
25	41
26	...	18	...	...	1	11	...	19
27	47	...	15	...	14
28	13	...	45	...	06
29	19	...	62	...	...
30	3	11	...	...	...	...
31	...	12	...	...	...	...	...	...
TOTAL.	2	81	5	92	5	79	7	25

Note—January,	1922	...	...	...	2	.97
"	1921	...	...	...	3	.56
"	1920	...	...	...	2	.83
"	1919	...	...	...	2	.29
"	1918	...	...	...	6	.18
"	1917	...	...	...	1	.42
"	1916	...	...	...	8	.08
"	1915	...	...	...	6	.34
"	1914	...	...	...	1	.46
"	1913	...	...	...	5	.00
"	1912	...	...	...	7	.14

Years—Total	1922	(at Lewisville)	...	81	.16
"	1921	...	...	78	.79
"	1920	...	...	59	.07
"	1919	...	...	60	.19
"	1918	...	...	70	.58
"	1917	...	...	73	.64
"	1916	...	...	69	.41
"	1915	...	...	70	.57
"	1914	...	...	54	.86
"	1913	...	...	65	.31
"	1912	...	...	63	.34

PAMPHLET SERIES.

*The following can be had at the Office of the Society,
5 Chacon Street.*

- | | |
|--|---|
| 249 Cane Farmers Crop 1907 | H. E. Murray |
| 257 Cacao Cultivation | O. W. Barrett. |
| 259 Pure Bred Zebu Cattle | C. W. Meaden. |
| 263 Cacao Cultivation Reports
on Shades | O. W. Barrett. |
| 266 Cacao Special Report on
General Culture | O. W. Barrett. |
| 279 The West Indies and Canada | West India Committee Cir-
cular |
| 280 Cacao Pests of Trinidad
Final Report | O. W. Barrett. |
| 324 Fungus Disease of Cacao | F. A. Stockdale. |
| 357 Remarks on Sugar Cane
Blight | O. W. Barrett. |
| 360 Cattle in Trinidad with
special references to
Breeding | Report by a Select Com-
mittee of the Society. |
| 390 The Witch-Broom Disease of
Cacao Translated | Mr. C. J. J. Van Hall. |
| 404 Sunlight and Fungi | Mr. C. J. J. Van Hall. |
| 405 Library of the Agricultural
Society 1st Jan. 1910 | Secretary. |
| 407 Nicaraguan Criollo Cacao | J. H. Hart. |
| 412 A Bacterial Disease of Ban-
anas and Plantation | Mr. J. Birch Rorer, M.A. |
| 422 Indentured Labour and Pre-
ventable Diseases | Dr. George H. Masson. |
| 426 Selection and the Cacao
Industry | Dr. A. Fredholm |
| 435 Kralloten Disease in Wild
Cacao | Mr. C. J. J. Van Hall. |
| 439 The Pollination of the
Cacao Flowers | Mr. H. A. Caracciolo |
| 440 A Collection of Fossils from
Couva | R. J. Lechmere Guppy. |
| 441 Results of Experiments with
the Frog hopper Fungus | Dr. Lewis H. Gough. |
| 442 The Green Muscadine of
Frog hoppers | Mr. J. Birch Rorer, M.A. |
| 443 Fowl Ticks | Report by Select Committee |
| 444 The Culture of Hevea | Dr. P. J. S. Cramer. |
| 453 Notes of some Cacao Pests
soil Problems for Cacao
Planters | R. Lechmere Guppy. |
| 465 Agricultural Protection Or-
dinance | W. C. Jardine. |
| 467 Recent Addition to Insect
Fauna in the West Indies | Dr. A. Fredholm. |
| 477 Influence of Mosquitoes on
Birds Life | Dr. A. Fredholm. |
| 480 International Agricultural
Institute in Rome | T. H. ElMott. |

- 483 Sugar Cane Nurseries
 485 The Planters, A.B.C.
 486 Change of Leaf in Cacao
 494 Remarks on the Cultivation
 on Yams
 499 Agricultural Education in
 Trinidad
 504 Agricultural Education
 505 The King of the Woods
 (Momotus Bahamensis)
 510 Geology of Antigua and
 other West Indian Islands
 516 What are we going to do
 about the Frogopper?
 520 Further Note on the Caroni
 Series at Savaneta
 526 The Practice of Renewal of
 Chupons
 528 Rules and Regulation by
 District Agr. Society

 529 Lessons from the Drought
 539 The Silk Industry
 545 Agricultural Contracts
 548 Ticks
 550 Beetles Affecting the Cocoa-
 nut Palm
 554 Fungoid and Insect Pests
 562 Higher Agricultural Edu-
 cation Part

 564 Agricultural Development in
 the West Indies
 573 Tuberculosis
 608 Agricultural Revolution by
 the New Cult
 609 Ankilostomiasis
 610 Lime Cultivation Diseases
 and Pests
 611 An Experiment in Timber
 Plant Tobago
 613 Malaria
 618 Agricultural and Industrial
 Exhibition

 622 The Influence of War on
 Tropical Agriculture
 623 Tuberculosis
 632 Round Tobago

 633 Rhinoceros Beetles
 634 Report on the Inoculation of
 Locusts in *Cocobacillus*
 Acridiortum
 641 Notes on the Budding of
 Cacao in Trinidad
 655 *Theobroma Cacao*
- Mr. J. J. A. Carlee
 By a Member.
 Mr. W. C. Jardine.

 Rev. H. Morton.

 Dr. A. Fredholm.
 Prof. H. E. Hendrickson.

 Mr. A. B. Carr.

 R. J. Lechmere Guppy.

 J. J. Carlee.

 R. J. Lechmere Guppy.

 Dr. A. Fredholm.

 Affiliated with the Agr.
 Society of Trinidad and
 Tobago.
 Dr. A. Fredholm.
 C. Glandon.
 Report of Cocoa Committee.
 G. N. Walcott.

 F. W. Ulrich.
 F. W. Ulrich.

 Adopted at a meeting of the
 Society.

 Prof. H. E. Hendrickson.
 Dr. Geo. Masson.

 Mr. H. Vincent.
 Col. J. R. Dodd.

 Mr. W. G. Freeman, B.Sc.

 R. S. Reid.
 Dr. C. F. Lassalle.

 Report of Joint Executive
 Committee.

 Mr. W. G. Freeman, B.Sc.
 Dr. Geo. Masson.
 Report by Sec. submitted to
 the Society.
 F. W. Ulrich.

 J. Birch Rorer.

 Mr. W. G. Freeman, B.Sc.
 F. E. Olivier

- 657 Leguminous Plant
 660 Causes of Emigration from the Colony
 662 Why Cacao Hybuds and not varieties
 666 Lime Industry
 667 Manurical and other Experiment on Cacao
 669 Inherent Characterists of Theobroma Cacao and a summary on Cacao Experience
 676 Cacao disease in Ecuador
 683 Our Food Possibilities
 684 Plant Breeding and the Pollination of the Cacao Flower
 685 Moon's Influence on the earth and Plant
 693 The present position of the Citrus Industry in Trinidad & Tobago
 694 The Food question and our grain Crops
 697 Algal Disease of Cacao
 701 Note on the Butterflies of Tobago
 702 Field Sanitation
 703 Rules & Regulations of the Agricultural Society
 704 Castor Oil Cultivation
 705 Remarks on a Drastic Treatment for Thrips in Grenada
 706 Co-Operation
 715 Drainage
 716 Lime Industry
 717 Possible Trade in Yams with Canada
 737 Recent Experimental Work on Cacao
 718 Report of the Fruit Committee
 732 Ankylostomiasis and the Planter
 772 The Establishment of Fruit Industry in Trinidad and Tobago
 775 Disease of Cacao in Trinidad
 776 Notes on Poultry Raising
 777 The Treatment of Ankylostomiasis on the High Seas by the Intensive Method of Thymol Administration
 778 Cacao Thrips in San Thome
 779 Fermentation of Cacao
 780 Plant Protection Ordinance and Its Use
 781 The Common Internal Parasites of Cattle
- W. E. Broadway
 E. Gransauil.
 Mr. F. E. Olivieri.
 Dr. A. H. McShine.
 Mr. E. Radcliffe Clarke
 F. E. Olivieri.
 Prof. A. N. Martin
 A. B. Carr.
 F. E. Olivieri
 G. H. Nunez.
 W. E. Broadway
 F. D. Davies.
 J. Birch Rorer.
 Sir Norman Lamont.
 Atis. Agostini.
 Paul Ad Serre.
 F. W. Ulrich.
 F. D. Davies.
 R. A. Francis.
 H. Meaden.
 Rev. H. Morton.
 Mr. W. G. Freeman, B.Sc.
 Mr. W. G. Freeman, B.Sc.
 Geo. C. Payne, B.A., M.D.
 Mr. W. G. Freeman, B.Sc.
 Wm. Nowell.
 Mrs. F. E. Scott.
 Dr. Geo. Masson.
 F. W. Ulrich
 Jos. de Verteuil
 Frank Stell.
 Capt. H. Metivier.

Proceedings of the Agricultural Society.

FEBRUARY, 1923.

EDITOR'S NOTES AND CLIPPINGS.

Cacao Production—Ecuador for the years 1921 and 1922 :—

	1922.	1921.
Arriba	645,558	595,679
Balao	148,604	173,657
Machala	38,626	58,021
Total	832,788	827,357

Quintales of 100 lbs. (46 Kgs.).

The total crop of Bahia (Brazil) is estimated to exceed 700,000 Bags, this year.

The British Empire Exhibition (1924) :—Attention is called to the Great British Empire Exhibition which is to be held in London next year and which is to be on an unprecedented large scale to include all the Dominions and the Colonies of the Empire.

By letters received from the Assistant General Manager of the Exhibition and from the Commissioner of the West Indian and Atlantic Group Committee, the Hon'ble F. M. B. Fisher, who in addition to being an ex-Minister for Customs and Marine in New Zealand is also

a Member of the Executive Council of the Exhibition, has agreed to undertake a special mission to the West Indies and Atlantic for the purpose of explaining to their respective Governments and to the representative groups of business men the real aims and objects of the British Empire Exhibition, to be held in London between April and October 1924.

Mr. Fisher is expected to arrive here on or about the 16th March and as his stay will be necessarily very brief, appeal is made to the Agricultural and Commercial bodies to do their best to arrange meetings and otherwise help Mr. Fisher in his efforts on behalf of a great Imperial Movement.

The Hon'ble Francis Marion Bates Fisher is a man of manifold interests and it is said it is a pleasure to hear him speak. He has great Colonial experience and acted as Minister of Trade and Customs in Mr. Massey's cabinet in New Zealand. It is hoped nothing will be spared to make his mission a success and that in spite of the financial depression, the Colony will be able to spare the requisite fund to be represented at this colossal scheme for bringing together all parts of the Empire, to show its potentialities and to tighten the bonds which unite us to this great Commonwealth of Nation.

It is expected that the Agricultural Society will call a special meeting to meet Mr. Fisher.

Pea-nuts :—The Colony imported from the United States and from other West Indian Islands, but more especially from St. Vincent :

202,820 lbs. Pea-nuts of a value of £2,895 in 1921

339,385 lbs. Pea-nuts of a value of £4,711 in 1922

It is mainly as an article of food that it is appreciated and it appears to be selling at a remunerative price, as can be seen by the quantity which is daily hawked in the streets of the City.

There is every reason to believe that a small local industry could be profitably established, as the Island

possesses areas of light sandy and loamy soil suited to this form of cultivation. Small patches of pea nuts are occasionally found in gardens scattered throughout the Island, but no serious effort appears to be made to build up a small industry for the purpose of supplying the local demand for these nuts. It commends itself particularly to peasant-proprietors as it entails no outlay for tools or costly implements and is a crop that can be entirely handled by child labour and should be a great help to peasants with large families of tender years. It can form part of a regular rotation of crop with yams which generally leave the land in a good tilth suitable for peanuts. It takes only from seventeen to twenty four weeks to reach maturity from the time of sowing the seed and therefore a quick return is obtained without the large period of patient waiting usual to most crops.

The Pea-nut is the fruit of "*Arachis hypogaea*" and is an annual trailing plant belonging to the Leguminous Order and bears yellow pea shaped flowers along its stem and is remarkable for its habit of burying its seed pods in the ground to ripen. After the petals have fallen from the flower, the flower stalk curves over and buries itself in the soil and from this stalk the nut develops and ripens in the ground.

Soil :—It is obvious that the soil must be well tilled and be of light sandy nature to enable the flower stalk to enter the ground easily. Volcanic soil, such as is met at St. Vincent seems eminently suitable for that cultivation. Clay soils are capable of producing good crops under certain conditions, but should be avoided when the crop is intended for local consumption as food. Such soils discolour the pods and thereby lower their market value and the cost of reaping is greatly increased through the soil adhering to the pods. A deep, light, clean, sandy soil such as is generally selected by the peasants for growing vegetables should be used for the purpose. An application of lime—about $\frac{1}{2}$ lb to the square yard—to

the soil a few weeks previous to planting is very beneficial and should always be applied when possible. Intensive rather than extensive cultivation should always be practised by small proprietors, especially in the way of loosening the land—pen manure applied some time before sowing, but not at the same time as when lime is given, will ensure larger yield.

Sowing :—The nuts should be shelled immediately before sowing and care must be taken not to bruise the kernel and all unsound or dark coloured nuts should be rejected. Some cultivators soak the unhusked seed before planting but the practice is not generally adopted. The seeds are covered with earth lightly pressed down by the foot and a little loose mould is sometimes raked over the impress of the foot to prevent the sun caking the soil.

The seeds should be sown in rows, one to two inches deep and one and a half to two feet apart in the rows and three feet between the rows. Some cultivators put two seeds in a hole, but this is not necessary. Taking $1\frac{1}{2}$ feet as the medium spacing, about 19,000 seeds would be required to the acre.

The best time for sowing depends upon local conditions, but May or June, at the beginning of the Wet Season, would seem to be the best time in this Island, the reaping would then take place, in the beginning of the Dry Season, which lessens the expenses, through the earth falling readily from the pods and little or no injury is caused should it become necessary to leave the crop in the ground for a few weeks after the nuts have reached maturity.

Cultivation :—The spaces between the young plants should be weeded and the land kept loose, but if the land has been properly prepared before sowing, little attention is otherwise necessary. Fowls should be excluded when

the seeds are germinating, as they greedily eat the young shoots. When weeding, care must be taken not to disturb the flower stalks already fixed in the soil.

The cost of cultivation does not appear to be very high. As furnished by Mr. W. D. Gordon of St. Kitts, it stands at :—

	£.	s.	d.	
Close ploughing	0.	5.	0	per acre .
Hoe harrowing	0.	2.	0	„ „
Planting by hand	0.	4.	0	„ „
Weeding and Moulding	0.	3.	6	„ „
Reaping at 1s. per barrel				
for ten barrels	0.	15.	0	„ „
<hr/>				
	£	1.	9.	6

Harvesting :—A dry period should be chosen for this operation. The plants should be carefully lifted with a fork and gently shaken to free the pods from earth. The vines should then be laid in rows with the pods exposed to the sun where they should be left to cure—the nuts should be picked by hands. When quite dry, the nuts should be spread out in wooden trays or on the floor and gently brushed to remove all particles of earth. To make the nuts attractive and that will command a higher price, it pays to place the nuts in a large bath of water and to gently scrub them in bulk previous to sun drying them.

All this care would not be necessary when pea-nuts are grown on a large scale for the manufacture of edible oil.

Yield per acre :—The actual yield per acre, is not likely to be more than 1,000 to 1,500 pounds, but under special care, as much as 3,000 to 3,500 pounds can be obtained. Taking a yield of only 10 barrels an acre, selling at a low figure of 10 or 11 shillings per barrel—a very fair profit is obtained, without taking into account the value of the vines as fodder.

Uses of Pea-nuts :—As already stated, the pea-nuts are mainly used as food in this Colony. The ripe nuts are parched and eaten—they are best roasted by placing in a tin of sea sand over a fire—the sand being agitated to obtain a uniform heat. Pea-nut sugar cakes are specially prepared by the Chinese—they are also used in other forms of confectionery. But it is in the production of oil, that they are commercially of value. As much as 30 to 50 per cent of the weight of the shelled nuts can be turned into oil. Cold-drawn it is a good substitute for olive oil and is much employed for culinary purposes. It is also used as pea-nut butter. After the extraction of the oil, it is a source of Oil-cake and Oil-meal, rich in carbohydrates and nitrogenous matters, with a considerable quantity of fat:

52% of protein.

8% of fat.

27% of Carbohydrates.

and is therefore one of the most concentrated feeding stuffs.

As a fodder the vines are largely used in some parts of the world.

Much of our information has been obtained from a publication written by the present Director of Agriculture, Mr. W. G. Freeman and from a leaflet prepared by Mr. J. Brooks.

(SOCIETY PAPER No. 791.)

TICKS AND THEIR CONTROL.

*Read by Capt. H. V. Melivier, B.Sc., O.B.E., Govt.
Vet. Surgeon, at a meeting of the Society, Feb. 8, 1923*

Animal parasites for the purpose of description are placed in three branches, viz, Arthropoda, Vermes and Protozoa. In the branch Vermes such parasites as the worms and liver flukes are included, and in the case of Protozoa small unicellular forms of animal life, like the Coccidia and the Trypanosomes. The Coccidai are parasitic in the mucous membrane of the intestine of many animals, whereas the Trypanosomes invade the blood stream of many of the domesticated animals causing diseases in many cases. These two branches can be further differentiated from the Arthropoda by classifying them as internal parasites, meaning thereby that they are parasites that live within the body. The branch Arthropoda includes all parasites such as mosquitoes, gnats, flies, fleas, ticks, chiggers etc. and they as a group are what we commonly refer to as external parasites. This branch is further divided into classes (1) the Insecta, in which there is a well-marked head chest and abdomen and (2) the Arachnida, in which there is no well marked differentiation of the above mentioned parts, and it is to this type of parasites that the ticks belong.

Ticks therefore are degenerate Arthropods and in the course of their lifetime they pass through four stages, viz, egg, larval, nymph and adult. The eggs are deposited in clusters on the ground and after a certain interval depending on the moisture, they hatch out into larvae which are small bodies about the size of a pin's head; these forms are sometimes referred to as grass lice or seed ticks. It is a recognised fact that ticks multiply more rapidly during the dry season, but it has also been

proved that the diminution of ticks in the rainy season cannot be entirely attributed to the excessive rains, for Hunter and Hooker in their report on the Texas Fever Tick showed that eggs which were submerged for periods up to 20 days nearly all hatched, so in the light of our present knowledge one can only conclude that the dry season is more suitable for the development of the tick than the wet season. These larvae when they hatch out have three pairs of legs and soon climb up blades of grass and weeds attaching themselves by means of their hind legs, and there lie in wait for a passing host. When a host passes they grasp its hair or skin by means of their forelegs then wander over its body finally attaching themselves to suck blood. After a few days they come to rest and moult, and then there emerges the nymph which has four pairs of legs. In the nymph stage it is impossible to differentiate between male and female ticks as no sexual organs are present. The nymph then continues to suck blood and after an interval moults. The adult tick then emerges, at this stage both male and female sexual organs are distinct, and these forms like the nymph have also four pairs of legs. The only function of the male appears to be to fertilise the female because after copulation it falls to the ground and dies. The female on the other hand after fertilisation attaches itself to the host grows enormously in size until she appears like a rounded or ovoid marble like body, and after a certain interval of time she drops off to the ground to lay her eggs. These eggs are generally laid in glutinous masses and each adult female may lay from 2,000 to 3,000 eggs.

Depending on their life history, ticks may be divided into two classes. In the first class we have what are known as continuous feeders, and in the second class the interrupted feeders or dropping off ticks. The continuous feeders pass the whole of their life cycle from the larval form to the adult male or female tick on one host, the interrupted feeders on the other hand drop off to the ground between each stage, though it should be mentioned

that certain of these dropping off ticks can pass the larval and nymph form on one host before they leave it. In the course of a life cycle these interrupted feeders require at least two hosts, but generally as many as three.

In the case of the continuous feeders the eggs that have been deposited on the ground take from 15 to 45 days to hatch out into larvae and the latter after their attachment to the host they remain for 21 to 22 days before they fall off again as mature females to lay eggs. This is a most important point because in it we have the necessary knowledge to carry out the eradication of this kind of tick.

To consider the interrupted ticks life cycle it is a little more complex, because the larval form as a rule attaches itself to the host for a period of three to six days it then falls off to moult which takes about a month, it then emerges as a nymph, attaches itself to another host for a period of three to six days falls off and again moults and it is not until after a period of eight weeks the male and female ticks appear and these attach themselves to another host for another eight weeks. The complete life cycle of these interrupted feeders therefore takes about twenty weeks, and as already pointed out during the course of its life an individual tick may have been attached to three different hosts. It is for this reason that in dealing with the eradication of these interrupted feeders or dropping off ticks one has a much harder task to confront than in the case of the continuous feeders. In South Africa where that dreadful disease known as "East Coast" Fever exists and the vector of which is a dropping off tick, it is absolutely necessary to dip or spray your cattle at intervals of about six days, because it is only in this way that it is possible to get the tick at some stage of its life cycle.

Throughout the West Indies and on the Continent of America the commonest tick is the so-called 'cow' tick, its correct name is *Margaropus annulatus*, a tick whose

commonest host is the ox, but at the same time it is capable of undergoing its life cycle on the dog, horse or on other animals. This tick is a continuous feeder meaning thereby that its life cycle on the host takes from 21 to 22 days to be complete.

The cow tick affects all breeds of cattle, but it is a known fact that short coated animals do not suffer to the same extent as long coated cattle. It is for this reason that the Zebu and other Indian cattle, as well as the old Spanish breeds do not suffer to the same extent as the long coated European cattle when imported to these parts. These ticks cause a great deal of loss of blood to cattle, and either alone or as accessory agents to other diseases, such as Strongylosis, are responsible for a high death rate in cattle. Cases can be recorded where cattle have been seen in a state of emaciation covered from head to foot with ticks, and when the animal eventually dies from exhaustion following emaciation and debility, owners still make an attempt to attribute death to some other cause. The 'cow' tick or *Margaropus annulatus* is again most important, because it is the vector of the Piroplasm that causes Texas Fever, Red Water or Bovine Piroplasmosis, a disease which plays havoc with European cattle when imported to this Colony. It is reported that nearly all European cattle becomes affected with this disease and the death rate is rather high. During the past two years only one head of cattle was imported and Piroplasms was seen on microscopic examination of its blood after symptoms of the disease appeared. Red Water or Texas Fever is a disease which is characterised by the following symptoms: dullness, loss of appetite, high fever, marked knuckling and the passages of coffee-coloured or slightly red urine. The disease corresponds somewhat closely with malaria in man, because just as the mosquito introduces the malarial parasite into its host, in like manner the tick introduces the red water piroplasm. In order to more fully understand the dreadful effect of these piroplasms it is as well to study the physiology of blood

for a minute. Blood is composed of cells and a liquid called plasm. The cells are known as red and white corpuscles, and the red corpuscles owe their colour to a substance known as haemoglobin with which they are impregnated. It is owing to this substance that red cells have the power to absorb oxygen in the lungs, which as we all know is required to be taken to the various parts of the body for metabolism. When this small parasite, which the tick introduces into the body reaches the blood stream they at once invade the red cells, multiply rapidly and break them up, and in this way the red colouring matter is set free and the animal's supply of oxygen is reduced to a minimum, owing to the destruction of these red cells. The animal can only get rid of this superfluous red colouring matter, either as in the case of red water fever by means of the kidney in which case the animal's urine is blood or coffee-coloured, or by means of the liver where it is used for manufacturing bile; in the latter case owing to the excess of bile we get jaundice or what is otherwise known as biliary fever. In dogs and horses in Southern Europe and Asia, there is a specific piroplasm similar to the Texas fever organism for each of these animals and also tick transmitted, but in these animals as a rule, the piroplasms cause jaundice hence the terms biliary fever in the horse and malignant jaundice in the dog.

Red water fever can be prevented by having animals inoculated against the disease before they are imported into the Colony, in this way they are immune when they arrive here. It has also been proved that young animals are less susceptible to the disease than adults, so another point to consider is to import, whenever possible, young cattle. Our own native animals become immune soon after birth and hence their resistance. With regard to the curative treatment there is no specific agent, quinine is known as a specific for malaria in man and trypan blue for malignant jaundice in the dog, but both these drugs

give varying results in the case of cattle. Good nursing is the essential factor, and it is a wise plan to take an animal's temperature daily to detect the disease at its earliest stage after their arrival in the Colony. An animal that has once suffered from the disease is never the same after recovery.

The common horse tick in this Colony is what is called the tropical horse tick or to use its correct name *Dermacentor nitens* and it is almost exclusively confined to horses and mules; it usually occurs in little clusters in the ear, but it is also found around the anus and other parts. Horses and mules seem to suffer little from this form of tick infestation and they are not known to be the carrier of any disease, however like other innocuous species, their economic importance depends upon relative abundance and wherever these ticks are present in myriads they cause emaciation and debility.

There is a most important tick affecting our poultry known as the fowl tick or *Argas miniatus*, it is sometimes called *Argas persicus* or the Persian fowl tick. In colour it varies from reddish brown to a dark brown, depending on the stage of engorgement. Its life cycle is somewhat different to that of the other ticks because when the eggs hatch, which takes a period of four weeks, the larvae attach themselves to the host and stay on it for four or five days, they then leave the poultry and go into crevices in fowl houses or under the bark of trees where they moult and the nymph emerges: this nymph is a nocturnal parasite because it only attacks poultry at night returning to its hiding place in daylight. After a few days the nymph moults and the adult tick emerges and at this stage the parasite is also nocturnal, because they attack the poultry only in the dark and they are capable of thoroughly engorging themselves with blood in an hour. The female again differs in that she does not lay two or three thousand eggs at one time but lays repeatedly, and at each time laying as many as 200

eggs, between each laying period she pays her usual nightly visit to the host and engorges herself. The damage done to poultry is considerable, because when myriads of these parasites attack fowls great quantities of blood must be extracted. In some cases the cause of death can be attributed to no other cause, and as a rule weakened and inthrifty poultry may be traceable solely to ticks: poultry suffering from ticks have dull, ragged plumage, suffer from diarrhoea and lay poorly. These fowl ticks transmit a very fatal disease known as fowl spirochaetosis, but there is no evidence of the existence of this disease in the West Indies. In order to overcome these fowls ticks houses and roost should be thoroughly painted with kerosene or gasolene. Boiling water or steam may be used in place of kerosene and a repetition of the procedure carried out after an interval of about five weeks. The use of considerable quantities of crude oil about poultry houses is also very useful and it is a wise plan to emerge the posts of the house in cups of crude oil or tar. Fumigation with sulphur is recommended where it is possible to make the hen house airtight: for the treatment of fowls infested with larvae an ointment composed of sulphur kerosene and lard acts well. In spite of all these attempts of eradication, it is at times necessary to burn down all fowl houses to get rid of these dreadful parasites.

The Entomologist of the Department of Agriculture sent to England a number of ticks which I had collected from the large animals for identification and they prove to be (1) Cow Tick or *Margaropus annulatus* and (2) *Dermacenta nitens*.

Throughout the West Indies there is a dog tick known as *Rhipicephalus sanguineus* or the large red tick, this is an interrupted fever and in other parts of the world e.g. Southern Europe and Asia it transmits the disease known as malignant jaundice in the dog. This disease is not known in the West Indies. The usual tick

on the dog, however, seems to be the cow tick which does not grow to the same size on the dog as in the case of cattle. In dogs ticks cause irritation and rubbing, but no other harmful effects are produced by them.

Two other forms of tick have been found by the Entomologist of the Department, they are also common throughout the West Indies. One is the frog or reptile tick known as the *Amblyomma dissimile* and the other the forest tick, silver tick or *Amblyomma cajennense*. This species is a general feeder and is not at all particular in its selection of hosts. The *Amblyomma dissimile* is a continuous feeder but the *Amblyomma cajennense* is a dropping off tick or an interrupted feeder.

Putting aside the fowl tick, the method of eradication of which has already been described, our most dreadful tick is the cow tick, but as it is a continuous feeder and spends altogether 21 to 22 days on the host it is an easy matter to get rid of this parasite if we bear in mind that by spraying or dipping an animal with a fluid that destroys tick, at intervals of less than 21 days, say every 15 days, we must catch this tick at some stage of its life cycle and in time completely get rid of it.

Nature has provided us with valuable tick enemies in the form of savannah birds or black birds and everything should be done to help them to propagate. One soon learns to appreciate the mutual friendship that exists between blackbirds and cattle by walking around savannahs or pastures in the Colony. Lizards and domestic fowls are also well-known enemies of ticks, but there is no more thorough way of dealing with these parasites than by regular spraying or dipping.

Rotation of crops have been used on badly infested tick areas, but as we have permanent pastures this method of dealing with ticks must be put aside.

Another method employed is to burn pastures but after the grass has been burnt it was found that an abundance of weeds came up in its place and furthermore this

drastic action leaves many ticks untouched. In former days dressings with tar and oil were practised on animals but these have only a local action and at the same time is a very severe application; there is no attempt at complete eradication of the cow tick by this old fashion and other similar dressings.

The best spraying or dipping solution is some arsenical preparation such as a solution of sodium arsenite, this acts as a deadly poison to the tick when they are feeding on animals whose skin has become completely moistened with this solution. The formula used in Queensland is:—

Arsenic $8\frac{1}{2}$ lb.

Caustic Soda 4 lb.

Stockholm Tar $\frac{1}{2}$ gallon.

Water 400 gallons.

The arsenic and soda are boiled in a little water first and then added to the remainder of the solution.

The South African formula is:—

Sodium arsenite 1 lb.

Soft Soap $\frac{3}{4}$ lb.

Paraffin 2 lb.

Water 100 gallons.

There is on the market as well a preparation known as Cooper's Cattle Dip, a proprietary article which has a world wide reputation as a powerful tick destroyer. It is kept in containers to suit both the small and the large man with directions that are so simple to be carried out that we need look no further for a better preparation. In Jamaica Cooper's Dip is generally used though at times another proprietary article—Paranaph (Naphthalene and Soft Soap)—is used with it.

In countries where there are a large number of animals to be treated the procedure is to dip animals in a tank containing an arsenical preparation, and in the Southern States of America where nearly three quarters of a million square miles had become tick infested it is contemplated that by systematic dipping started in 1906 that this area would be tick free by the middle of 1923. In this Colony our herds are not so large in number and on the large estates and pastures spraying machines are more serviceable, whilst the small man can be splendidly equipped with a bucket sprayer or any kind of spraying apparatus used for spraying trees etc. The greater point to remember is that the spraying must be regular and strict precautions must be paid to use the preparation in the strength given on the directions. The interval should be as already stated 15 to 18 days, and if this procedure is adopted, that area would be soon free from ticks provided that all new cattle are sprayed before mixing them with the herd. The use of one of these spraying machines by the Usine Ste. Madeleine Sugar Co. has given splendid results and other estates would do well to follow their example. The Department of Agriculture has now got two of these machines erected, one at the Government Farm which has already been used on two occasions, and another on the Queen's Park Savannah within the paddock and it is hoped that spraying operations will be started later this month on the Savannah.

The cost of spraying an animal is very small, in the case of Cooper's Cattle Dip the cost of which is \$2.50 per gallon which provides sufficient solution to spray about a hundred animals, it comes to 2½ cents for spraying each animal or five cents per month if spraying should be carried out twice monthly. Five cents spent in this way is a most economical undertaking because in time you will find that the feed of your cattle can be reduced as you will be no longer feeding ticks, and further it will be possible to bring animals in from Europe and other places and have no more worry with tick fever.

In spraying or washing cattle the following conditions should be rigorously adhered to:—

- 1.—Spray or wash in the early morning; wherever possible allow the cattle to dry before turning them out to pasture.
- 2.—If cattle have been driven long distances allow them to cool before spraying.
- 3.—Cattle of all ages and milch cows should be sprayed; milch cows should always have their udders washed before milking on the first day of spraying.
- 4.—The spray should be finely distributed on the whole body of the animal, and the animal should be sprayed on a patch devoid of grass.
- 5.—All waste products and washings from the apparatus should be placed in a hole and covered over with soil.

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GENERAL MEETING.

Minutes of the General Meeting held in the Council Chamber on 8th February 1923.

Present :—W. S. E. Barnardo, President in the Chair, Messrs. A. B. Carr, Vice-President, J. Lickfold, C. Fleming, J. Black, D. Majaru, J. Mungal, W. G. Freeman, Wm. Nowell, E. Radcliffe Clarke, A. V. Stollmeyer, G. C. Wyatt, Captain Gooden-Chisholm, A. G. Hamlyn, A. J. Hamlyn, L. Shannon, C. P. Rojas, Captain A. A. Cipriani, W. C. Jardine, E. A. Robinson, P. T. O'Connor, G. Grant, Sir Francis Watts, Revd. H. H. Morton, Revd. C. D. Lalla, F. W. Ulrich, R. O. Williams, Captain Metivier, J. de Verteuil, A. G. Bailee, A. A. Sobrian, Delegate Naparima, J. Mills, Delegate Tacarigua, Monsignor Maingot, Delegate Arima, Lieut-Col. J. H. Collins, L. de Verteuil, Secretary.

The students of the Agricultural College were also in attendance with Professors H. A. Ballou and F. S. Dash.

Minutes :—The Minutes of the General Meeting of 18th January were confirmed.

The Roxborough Show :—After welcoming Sir Francis Watts, the Professors and Students of the Agricultural College, the President referred to his visit to the Tobago Show and said that the \$500 that the Society had voted towards that Show, was well spent and the ground provision exhibits were particularly good. The Windward District Agricultural Society of Tobago had requested time to express their grateful thanks to the Parent Society.

Correspondence :—(1) A letter was received from Mr. H. Warner, thanking the Society for appointing him Honorary Vice-President and for their kind remarks. (2) Mr. A. G. Jones wrote accepting his appointment on the Managing Committee. (3) The Arima District Agricultural Society, enquired, if a Member of the Parent Society could be nominated as their Delegate. It was decided, that this can be done, provided that such a Delegate be made, at least, an Honorary Member of the District Society. (4) A letter from the Officer-in-Charge of H.M. Trade Commissioner's office, called attention to the Annual Report on Financial and Economic Conditions in the British West Indies, which can be obtained from Messrs. Davidson & Todd.

The Use of Bois L'Orme in the Curing of Cocoa beans :—Mr. A. V. Stollmeyer asked "Whether in the opinion of this Society the use of 'Bois L'Orme' is or is not necessary as a medium in polishing Cacao, and whether it imparts colour to the beans, and if in the affirmative, to nominate a sub-committee to go into the matter, and to formulate proposals to submit to the Government to amend the Cacao Claying Ordinance to meet the case."

He said that Bois L'Orme was the bark of a tree which possesses mucilagenous properties, and was used in a decoction in the dancing of Cacao beans to make them more slippery so as to guard against the breaking of the beans during the process of polishing, but did not impart colour to the beans. From practical experience, he did not believe that Bois L'Orme was at all necessary.

Mr. Radcliffe-Clarke, said that Bois L'Orme, was not a colouring matter and did not add weight to the beans.

Mr. Freeman, Director of Agriculture, said that his attention was first called to the question by a letter from Mr. L. Scheult, stating that he had been prosecuted for using Bois L'Orme and he wanted to know if this was against the Claying of Cacao Ordinance. The correspondence was sent to the Attorney-General who took the view that as Bois L'Orme did not increase weight or give a coating colour it was not clay within the meaning of the Ordinance and should not be made subject to prosecution. Instructions were sent out that no prosecution should take place. Experiments carried out at the River Estate, proved that Bois L'Orme had none of these objectionable features.

Mr. Rojas thought the use of Bois L'Orme was quite unnecessary and that the Ordinance should not be interfered with. Mr. E. A. Robinson agreed with Mr. Rojas.

Mr. J. de Verteuil, Agricultural Chemist, produced samples of a solution of Bois L'Orme, to show, that a colour could be obtained by certain preparations and that the use of Bois L'Orme should not be permitted.

Mr. D. Majani considered the discussion inopportune. He pointed out the increased demand for Trinidad Cacao due to the recent preparation of the Cacao free from Clay and that Ordinary Cacao was now,

in great demand and he thought that they should allow the Ordinance full play in its working.

After further discussion, the question was put to the vote and it was unanimously decided to leave the Ordinance as it stood.

Ticks and their Control :—Captain Metivier read an excellent paper on the above subject. It will be reproduced in the “Proceedings” of February.

Sir Francis Watts expressed his appreciation of the paper and thanked the Society for allowing the students of the College to be present. It was necessary that the students of the College should have opportunities of seeing how things were carried on in Societies like the Agricultural Society.

Mr. Mungal's Motion :—Mr. Mungal moved “that this Society is of opinion that the time has arrived when the Government should consider stability of labour and the present Immigration Department having no more ingress of East Indian Immigrants, be made to undertake the supervision and protection of labour in the Colonies of Trinidad and Tobago.

He said that anything that tended to ameliorate the conditions of labour should be welcomed and he regretted to find there was no proper machinery to protect the labouring population and that nothing was done to help the East Indians who formed the bulk of the labourers in the Island. To-day, they could not get a full week's work. Planters said they had no money to carry on their Estate and what was going to happen to the East Indians; were they going to allow them to return to India? This would be a great loss to the Colony. More interest should be taken in their welfare and induce them to remain in the Island.

Captain Cipriani said that for purpose of discussion he rose to second the motion. They might hope for the Immigration Department being worked on cheaper lines, but he did not think it ought to be abolished, as long as there was local East Indian labourers in the Island. Figures recently handed to His Excellency show that the Labour Bureau would in the end do good work. While he did not on general lines agree with Mr. Mungal's picture of the situation, he said the labour question was a serious one and he expects that the Society and his brother Planters will take a sympathetic consideration of the situation and they should think what must be done to maintain labour between the end of one Cocoa and Cane Season and the coming of the next. The Ordinance giving financial relief to Agriculturists averted to a great measure a deal of unemployment but how will the situation appear in the next six months, is worth their serious consideration?

At this stage of the meeting, the hour being too far advanced, the President moved the adjournment of the discussion to the next General Meeting. At 3.45 p.m. the debate was closed.

L. DE VERTEUIL,
Secretary.

Confirmed

W. S. E. BARNARDO,
President.

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REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

NAPARIMA.

The regular monthly meeting of the Naparima District Agricultural Society was held at the Town Hall, San Fernando on Monday, 18th December, 1922, when there were present :—Mr. J. C. Augustus, Vice-President, in the Chair, Revs. Canon Doorly, C. G. Errey, and Father

Romano, Mr. A. A. Sobrian, Delegate, Messrs R. M. Scott, H. Stent, T. Boodansingh, Agricultural Adviser, A. Gidharry, J. Thornhill, D. Chadee, J. Wickham, H. Gobin, H. Dee, E. Lewis, F. Maughn, W. Ogerrally, Dr. W. Dottin, and H. Gordon.

The meeting was called to order at 4.35 p.m. when the Chairman read a letter from the Secretary, stating that owing to a recent family bereavement he would be unable to attend. On the suggestion of Mr. Scott, Mr. Gordon was asked to perform the duties of the evening.

On the motion of Rev. Canon Doorly a vote of condolence to the Secretary was passed by the meeting.

Mr. Scott extended a hearty welcome to the Vice-President after his return from a holiday in Scotland and hoped that he had come back to them with renewed energy for the coming year's work.

Mr. Augustus thanked the meeting for the welcome and gave them a short but interesting discourse on the things he had seen during his travels with special reference to the visit to the works of Messrs. Cadbury Bros. at Bourneville. He also desired to thank Rev. Errey for keeping the fires burning for him while he was away.

Rev. Errey thanked the Chairman and said that what little he had done he thought it was his duty to do and that he was greatly assisted by the co-operation of the Officers and members of the Society.

Delegate's Report :—Mr. A. A. Sobrian, the Society's delegate, then gave his report. He said the last meeting of the parent Society was taken up with a visit to River Estate. They inspected the fields in company with the Director of Agriculture, the Manager and Superintendent of the Estate. They had a lecture by the Superintendent. They were shown around the fields and the different experiments explained to them and interesting statistics were also given them. He was struck with the Shade-

and No Shade experiments and judging from the results that were being obtained, he thought the reduction of that were being obtained, he thought the reduction of shade at River Estate was a successful one. In all they had a very enjoyable and instructive time.

Rev. Canon Doerly enquired as to the nature of the soil and if it had any bearing on the question of shade. The Chairman explained that the soil was a light sandy loam and fairly rich but that a great deal of intensive culture was necessary to keep no shade experiments up to standard. He instanced Grenada where very little shade was used but a great deal of cultural methods and a lot of manuring was in vogue. He further stated that River Estate had quite a favourable situation as it was surrounded on three sides by high hills which to some extent accounted for its 60 to 70 inches of rainfall annually.

Mr. Augustus said that the delegate's report was an interesting one. A little claying was useful to planters but as all good things it was greatly abused and it was for the good of Trinidad Cocoa on the foreign market that the Ordinance was made and so no one ought to say anything about the action of the Government.

Mr. Boodansingh, the Agricultural Adviser, then gave his report. He spoke about the prevalence of Pod rot of Cacao, giving methods of treatment and ways of prevention of the disease. He exhibited several pods in different stages of the disease.

The Chairman then thanked the Adviser for his useful report.

Father Romano suggested that the Society should hold a demonstration at Erin or Siparia. The Chairman said he would keep the suggestion in mind and bring it up when making up the programme for the coming year's work.

The Chairman wished the members a Happy Christmas and the meeting came to a close at 5.35 p.m.

ANNUAL REPORT.

The following is the Annual Report of the Naparima District Agricultural Society for year ending 31st December 1922.

Mr. Chairman and Gentlemen,—

I beg to submit the following Annual Report of the various transactions and activities of the above named Society for the year ending 31st December 1922.

Membership:—Number on Roll 120.

Officers and Committee Members :—The general election took place on January 21st, the following were the officers nominated :—Sir Norman Lamont (Bart.) Chairman, Messrs. J. C. Augustus Vice-Chairman, W. W. Bonyun Treasurer, A. A. Sobrian Delegate, Sydney P. Knox (Auditor) and Alex. E. Lakhan Hon. Secretary. The Executive Committee made up of the above named officers, along with the Rev. Canon U. S. Doorly, Rev. C. G. Errey, A. H. Dasent, R. M. Scoot, A. R. Sinanan and J. E. Stoer.

Meetings :—Regular monthly meetings were held throughout the year with an average attendance of 25, the same as last year.

Executive Meetings :—There has been one meeting of the Executive held in January, when the Chairman in outlining the work said, that there would be a number of lectures and the continuation of the School Gardens Competition; early in the year the Chairman left for England, the work then fell on the shoulders of our Vice-Chairman, Mr. J. C. Augustus who took up enthusiastically the pushing of the School Gardens' Competition. Nineteen schools were circularized, but on account of lack of interest it had to be abandoned.

Lectures and Demonstrations :—The past year has been one of activity; we have had regular reports from

our Delegate—eight lectures—and valuable papers were read by the Agricultural Adviser. The following is the transaction of each month.

January—finds us at the Palace Cinema, kindly lent by Mr. MacDougall, when Mr. Urich lectured on the Cocoa-producing island of 'St. Thome,' illustrated by lantern slides.

A Resolution was sent up on "The Outlook on Cocoa" and 'Self-help,' which provoked much discussion at the Parent Society.

February—Dr. W. Dottin lectured to the Society on animal tuberculosis and its relation to human beings. 19 schools were circularized in connection with the school-gardens competition.

March—Presentation to our Treasurer, Mr. W. W. Bonyun on his marriage of a 'Thermos Flask.'

Lecture on cocoa-pruning by the Agricultural Adviser.

April—Proposed lecture on Fruit cultivation. Mr. R. O. Williams came and delivered same in May.

June—Mr. Dasent lectured on "Tannia Growing" exhibited a huge Warahee of 50 lbs.

July—A resolution sent up to the Parent Society which reads as follows :—

That this Society is in accord with the Parent Society in its endeavour to get the Government to establish an Agricultural Credit Bank, and pledges itself to co-operate in the furtherance of this project.

Mr. Stell lectured on the Plant Protection Ordinance. Two dozen copies were ordered by the Members.

August—(a) The Agricultural Adviser spoke favourably on the weather conditions, and said that there was a marked scarcity of ground provisions in the Princes Town District.

(b) Mr. H. Gordon lectured on his reminiscences of West Africa.

(c) Members of the Rice Committee asked to visit the Debe lagoon and report.

September—Dr. H. V. Metevier, B.Sc., O.B.E. of the department gave a very interesting and lengthy lecture on Stock-raising, dealing especially with the “Medicine Chest.”

October—(a) Dr. C. F. Lassalle “Inspector of Health” lectured to the Society on Health and Hygiene.

(b) Resolution sent up to the St. Joseph Agricultural College, moved by Mr. Sobrian and seconded by Mr. Dasent.

That the best wishes of this Society be sent to Sir Francis Watts (Principal) and his staff on the opening of the Agricultural College.

November—(a) A reply from Sir Francis thanking the Society for their kind wishes.

(b) A vote of thanks to the Rev. C. G. Errey, Acting Chairman for occupying so ably the Chair during the absence of the Vice-Chairman.

December—A vote of Condolence moved by the Rev. Canon W. S. Doorly to the Secretary on the death of his mother and words of welcome to Mr. J. C. Augustus on his return from England.

The culminating feature in the history of Trinidad is the establishing of the Agricultural College at St. Joseph, in which our Chairman, Sir Norman Lamont (Bart.) took an active part.

In conclusion I beg to thank the various members, the Department of Agriculture, the Chairman, Vice-Chairman, The Treasurer, Mrs. R. M. Scott and the Press for the help given me in carrying out my work as Honorary Secretary.

A. E. LAKHAN,
Hon. Secretary.

Submitted.

15th January, 1923.

TRINIDAD MONTHLY PRODUCE REPORT AND STATISTICS.

COMPILED BY EDGAR TRIPP & Co.

Port-of-Spain, 28th February, 1923.

CACAO has been coming in very satisfactorily indeed as will be seen by the total amount shipped for this month. The demand from Europe and America has been very good, and in consequence prices have kept steady around \$9.00 for "Ordinary" and \$9.35 to \$9.50 for "Estates."

Advices received from Venezuela with regard to the present crop are not as satisfactory as they were some time ago, as it is reported that a certain amount of young fruit has perished. Some very fair shipments have been marketed here recently however, and these have been sold very promptly at \$11.40 to \$11.75 per fanega.

SUGAR.—Reaping operations are now in full swing throughout the Colony, and the yield of Juice is reported to be quite satisfactory for the commencement of the crop. Prices in all the principal world markets are reported to be firm, and manufacturers are holding for still better prices.

MOLASSES.—There still remains a portion of last year's crop of Vacuum Pan quality for disposal, and dealers are hoping for better prices in view of the improvement in the price of Sugar.

COCONUTS.—Prices for Selects advanced to \$16 per thousand in consequence of a still further improvement in demand from foreign markets. Culls, however, remained at \$9. per thousand throughout the month.

Being in very little demand, planters are turning them into Copra which gives a better result.

COPRA.—Prices were steady at \$4.50 per 100 lbs. during the month, and there is every likelihood of further improvement.

CACAO.

Shipments of Trinidad Cacao During the Month of February, 1923.

Destination.				Weight in lbs.	
To all countries	..	..		10,067,941	„
Shipped previously	..	..		7,255,930	„
				<hr/>	
Total from 1st January	..	..		17,323,871	„
To same date 1922	..	..		12,993,868	„
„ „ 1921	..	..		6,959,401	„
„ „ 1920	..	..		22,385,438	„
„ „ 1919	..	..		12,052,998	„
„ „ 1918	..	..		7,315,101	„
„ „ 1917	..	..		13,847,123	„
„ „ 1916	..	..		13,898,802	„
„ „ 1915	..	..		15,871,414	„
„ „ 1914	..	..		16,414,326	„
„ „ 1913	..	..		12,580,244	„
„ „ 1912	..	..		18,966,873	„
„ „ 1911	..	..		10,870,541	„
„ „ 1910	..	..		15,764,034	„
„ „ 1909	..	..		14,841,342	„

London Quotations for Ordinary:—

1st February per cwt.	..	58/—60/—
22nd " " "	..	58/—
24th " " "	..	56/—58/—
28th " " "	..	56/—58/—
To same date 1922	.. ..	55/—57/—
" " 1921	.. ..	66/—62/—
" " 1920	.. ..	128/—138/—
" " 1919	.. ..	90/—
" " 1918	.. ..	97/—
" " 1917	.. ..	78/—82/—
" " 1916	.. ..	89/—87/—
" " 1915	.. ..	69/—81/—
" " 1914	.. ..	62/—63/—
" " 1913	.. ..	69/—75/—
" " 1912	.. ..	61/—57/—
" " 1911	.. ..	61/—58/—
" " 1910	.. ..	55/6—56/—
" " 1909	.. ..	59/—59/6

New York Quotations :—

1st February per lb.	..	10 $\frac{3}{8}$ c.
16th " " "	..	10 $\frac{3}{8}$ c.
17th " " "	..	9 $\frac{3}{4}$ c.
28th " " "	..	9 $\frac{3}{4}$ c.
At same date 1922	.. ..	11c —12c.
" " 1921	.. ..	11 $\frac{1}{4}$ c.—10c.
" " 1920	.. ..	21 $\frac{1}{2}$ c.—21 $\frac{1}{4}$ c.
" " 1919	.. ..	17 $\frac{1}{4}$ c.—19c.
" " 1918	.. ..	13 $\frac{3}{4}$ c.—14 $\frac{1}{4}$ c.
" " 1917	.. ..	14 $\frac{3}{4}$ c.—14 $\frac{1}{2}$ c.

SUGAR.

Shipped for the Month of February, 1923.

To all countries	566,128 „
Shipped previously	425,603 „

Total from 1st January	991,731 „
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To same date 1922	4,162,650 „
„ „ 1921	2,352,185 „
„ „ 1920	5,025,473 „
„ „ 1919	2,321,235 „

London Quotations for Demerara Crystals:—

1st February per cwt.	45/—46/—
13th „ „ „ „ [•••] ..	45/6—46/6
14th „ „ „ „ [•••] ..	47/6—48/—
16th „ „ „ „ [•••] ..	48/3—49/—
17th „ „ „ „ [•••] ..	53/—54/—
18th „ „ „ „ [•••] ..	52/—53/—
21st „ „ „ „ [•••] ..	52/—54/—
24th „ „ „ „ [•••] ..	53/—54/—
27th „ „ „ „ [•••] ..	54/—55/—
28th „ „ „ „ [•••] ..	54/—55/—
To same date 1922	38/—42/—
„ „ 1921	124/9
„ „ 1920	104/—105/—
„ „ 1919	57/9
„ „ 1918	46/9
„ „ 1917	40/1½—43/1½
„ „ 1916	34/6—43/—
„ „ 1915	25/3—28/—
„ „ 1914	14/—14/6
„ „ 1913	16/3—17/9
„ „ 1912	19/9—21/6
„ „ 1911	14/6—16/—
„ „ 1910	16/3—19/—
„ „ 1909	14/3—15/3

New York Quotations, Crystals:—

1st February per 100 lbs.	..	5.18
13th " " "	..	5.90
16th " " "	..	6.75
18th " " "	..	6.53
20th " " " "	..	6.78
22nd " " " "	..	7.03
28th " " " "	..	7.03

To same date 1922	...	3.67— 3.61
" " 1921	..	4.70— 5.77
" " 1920	..	7.28—13.04
" " 1919	..	6.00½
" " 1918	..	6.00½

MOLASSES.

Shipped for the Month of February, 1923.

To all countries	..	10,000 gals.
Shipped previously	...	16,000 "
Total from 1st January	...	26,000 "

To same date 1922	...	19,600 "
" " 1921	...	8,080 "
" " 1920	...	164,253 "
" " 1919	...	73,872 "

RUM.

Shipped for the Month of February, 1923.

To all countries	193	„
Shipped previously	588	„

Total from 1st January	781	„
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At same date 1922	489	„
„ „ 1921	52,564	„
„ „ 1920	8,641	„
„ „ 1919	177	„

COCONUTS.

Shipped for the Month of February, 1923.

To all countries	1,460,605	nuts
Shipped previously	406,170	„

Total from 1st January	1,866,775	„
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To same date 1922	3,450,509	„
„ „ 1921	2,583,167	„
„ „ 1920	4,661,180	„
„ „ 1919	3,060,213	„
„ „ 1918	1,909,055	„
„ „ 1917	..	..	1,436,983	„
„ „ 1916	..	..	1,642,790	„
„ „ 1915	..	..	1,169,374	„
„ „ 1914	..	..	2,612,485	„
„ „ 1913	..	..	1,447,300	„
„ „ 1912	..	..	3,010,655	„

COPRA.

Shipped for the Month of February, 1923.

To all countries	605,900 lbs.
Shipped previously	708,475 ..

Total from 1st January	1,314,375 ..
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To same date 1922	230,480 ..
" " 1921	866,220 ..
" " 1920	461,400 ..
" " 1919	288,560 ..
" " 1918	1,141,564 ..
" " 1917	..	..	646,291 ..
" " 1916	..	..	660,942 ..
" " 1915	..	..	744,696 ..
" " 1914	..	..	225,536 ..
" " 1913	..	..	173,697 ..
" " 1912	..	..	210,565 ..

ASPHALT.

Shipped for the Month of February, 1923.

To all countries	12,586 tons.
Shipped previously	10,669 ..

Total from 1st January	23,255 ..
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To same date 1922	12,172 ..
" " 1921	20,801 ..
" " 1920	12,677 ..
" " 1919	19,142 ..
" " 1918	8,985 ..
" " 1917	18,826 ..

OIL.

Shipped for the Month of February, 1923.

To all Countries	8,760,024 gals.
Shipped previously	8,722,386 „

Total from 1st January	17,482,410 „
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To same date 1922	2,789,163 „
„ „ 1921	8,878,891 „
„ „ 1920	6,023,884 „
„ „ 1919	11,484,169 „
„ „ 1918	4,658,770 „
„ „ 1917	..	...	3,901,104 „



Rainfall for February, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		ELIN		KINGSBAY, TEXAS	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts
1	...	...	...	...	...	21	...	...
2	...	...	...	...	...	02	...	...
3	...	22	...	28	...	15	...	02
4	...	...	...	02	...	08	...	36
5	...	...	...	19	...	...	...	01
6	...	...	...	12	...	...	...	07
7	...	04	...	03	...	...	...	...
8	...	09	...	18	...	...	...	...
9	...	...	...	...	...	...	...	07
10	...	...	...	10	...	36	...	...
11	...	28	...	08	...	19	...	08
12	...	15	...	...	...	30	...	04
13	...	...	...	23	...	...	...	01
14	...	...	...	...	...	...	...	...
15	...	...	...	12	...	12	...	...
16	...	...	...	08	...	20	...	07
17	...	...	...	...	...	...	...	...
18	...	18	...	...	...	...	...	...
19	...	...	1	12	...	...	...	...
20	...	02	...	03	...	20	...	22
21	...	...	...	06	...	10	...	08
22	...	...	...	...	...	...	...	...
23	...	04	...	03	...	22	...	05
24	...	...	...	10	...	...	...	...
25	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...
28	...	...	...	...	...	16	...	...
29	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...
TOTAL.	1	02	3	07	2	32	1	11
Note—February,	1922		...	...	...	...	2	.16
" "	1921		...	...	...	...	1	.79
" "	1920		...	...	...	...	2	.21
" "	1919		...	...	...	...	0	.30
" "	1918		...	...	...	...	2	.69
" "	1917		...	...	...	...	1	.10
" "	1916		...	...	...	...	1	.03
" "	1915		...	...	...	...	1	.86
" "	1914		...	...	...	...	1	.32
" "	1913		...	...	...	...	0	.60
Years—Total	1922		(at Lewisville)		...	...	81	.16
" "	1921		...	...	...	...	78	.79
" "	1920		...	...	...	...	59	.07
" "	1919		...	...	...	...	60	.19
" "	1918		...	...	...	...	70	.58
" "	1917		...	...	...	...	73	.64
" "	1916		...	...	...	...	69	.41
" "	1915		...	...	...	...	70	.57
" "	1914		...	...	...	...	54	.86
" "	1913		...	...	...	...	65	.81

PAMPHLET SERIES.

*The following can be had at the Office of the Society,
5 Chacon Street.*

- | | |
|--|---|
| 249 Cane Farmers Crop 1907 | H. E. Murray |
| 257 Cacao Cultivation | O. W. Barrett. |
| 259 Pure Bred Zebu Cattle | C. W. Meaden. |
| 263 Cacao Cultivation Reports
on Shades | O. W. Barrett. |
| 266 Cacao Special Report on
General Culture | O. W. Barrett. |
| 279 The West Indies and Canada | West India Committee Cir-
cular |
| 280 Cacao Pests of Trinidad
Final Report | O. W. Barrett. |
| 324 Fungus Disease of Cacao | F. A. Stockdale. |
| 357 Remarks on Sugar Cane
Blight | O. W. Barrett. |
| 360 Cattle in Trinidad with
special references to
Breeding | Report by a Select Com-
mittee of the Society. |
| 390 The Witch-Broom Disease of
Cacao Translated | Mr. C. J. J. Van Hall. |
| 404 Sunlight and Fungi | Mr. C. J. J. Van Hall. |
| 405 Library of the Agricultural
Society 1st Jan. 1910 | Secretary. |
| 407 Nicaraguan Criollo Cacao | J. H. Hart. |
| 412 A Bacterial Disease of Ban-
anas and Plantation | Mr. J. Birch Rorer, M.A. |
| 422 Indentured Labour and Pre-
ventable Diseases | Dr. George H. Masson. |
| 426 Selection and the Cacao
Industry | Dr. A. Fredholm |
| 435 Krulloten Disease in Wild
Cacao | Mr. C. J. J. Van Hall. |
| 439 The Pollination of the
Cacao Flowers | Mr. H. A. Caracciolo |
| 440 A Collection of Fossils from
Courva | R. J. Lechmere Guppy. |
| 441 Results of Experiments with
the Frog hopper Fungus | Dr. Lewis H. Gough. |
| 442 The Green Muscadine of
Frog hoppers | Mr. J. Birch Rorer, M.A. |
| 443 Owl Ticks | Report by Select Committee |
| 444 The Culture of Hevea | Dr. P. J. S. Cramer. |
| 453 Notes of some Cacao Pests
soil Problems for Cacao
Planters | R. Lechmere Guppy. |
| 465 Agricultural Protection Or-
dinance | W. C. Jardine. |
| 467 Recent Addition to Insect
Fauna in the West Indies | Dr. A. Fredholm. |
| 477 Influence of Mosquitoes on
Birds Life | Dr. A. Fredholm. |
| 480 International Agricultural
Institute in Rome | T. H. Elliott. |

- 483 Sugar Cane Nurseries
 485 The Planters, A.B.C.
 486 Change of Leaf in Cacao
 494 Remarks on the Cultivation
 on Yams
 499 Agricultural Education in
 Trinidad
 504 Agricultural Education
 505 The King of the Woods
 (Momotus Bahamensis)
 510 Geology of Antigua and
 other West Indian Islands
 516 What are we going to do
 about the Froghopper?
 520 Further Note on the Caroni
 Series at Savaneta
 526 The Practice of Renewal of
 Chupons
 528 Rules and Regulation by
 District Agr. Society

 529 Lessons from the Drought
 539 The Silk Industry
 545 Agricultural Contracts
 548 Ticks
 550 Beetles Affecting the Cocoa-
 nut Palm
 554 Fungoid and Insect Pests
 562 Higher Agricultural Edu-
 cation Part

 564 Agricultural Development in
 the West Indies
 573 Tuberculosis
 608 Agricultural Revolution by
 the New Cult
 609 Ankilostomiasis
 610 Lime Cultivation Diseases
 and Pests
 611 An Experiment in Timber
 Plant Tobago
 613 Malaria
 618 Agricultural and Industrial
 Exhibition

 622 The Influence of War on
 Tropical Agriculture
 623 Tuberculosis
 632 Round Tobago

 633 Rhinoceros Beetles
 634 Report on the Inoculation of
 Locusts in Cocobacillus
 Aeridiortum
 644 Notes on the Budding of
 Cacao in Trinidad
 655 Theobroma Cacao
- Mr. J. J. A. Carlee
 By a Member.
 Mr. W. C. Jardine.

 Rev. H. Morton.

 Dr. A. Fredholm.
 Prof. H. E. Hendrickson.

 Mr. A. B. Carr.

 R. J. Lechmere Guppy.

 J. J. Carlee.

 R. J. Lechmere Guppy.

 Dr. A. Fredholm.

 Affiliated with the Agr.
 Society of Trinidad and
 Tobago.
 Dr. A. Fredholm.
 C. Glandon.
 Report of Cocoa Committee.
 G. N. Walcott.

 F. W. Ulrich.
 F. W. Ulrich.

 Adopted at a meeting of the
 Society.

 Prof. H. E. Hendrickson.
 Dr. Geo. Masson.

 Mr. H. Vincent.
 Col. J. R. Dodd.

 Mr. W. G. Freeman, B.Sc.

 R. S. Reid.
 Dr. C. F. Lassalle.

 Report of Joint Executive
 Committee.

 Mr. W. G. Freeman, B.Sc.
 Dr. Geo. Masson.
 Report by Sec. submitted to
 the Society.
 F. W. Ulrich.

 J. Birch Rorer.

 Mr. W. G. Freeman, B.Sc.
 F. E. Olivieri

- 657 Leguminous Plant
 660 Causes of Emigration from the Colony
 662 Why Cacao Hybrids and not varieties
 666 Lime Industry
 667 Manurial and other Experiment on Cacao
 669 Inherent Characteristics of Theobroma Cacao and a summary on Cacao Experience
 676 Cacao disease in Ecuador
 683 Our Food Possibilities
 684 Plant Breeding and the Polination of the Cacao Flower
 685 Moon's Influence on the earth and Plant
 693 The present position of the Citrus Industry in Trinidad & Tobago
 694 The Food question and our grain Crops
 697 Algal Disease of Cacao
 701 Note on the Butterflies of Tobago
 702 Field Sanitation
 703 Rules & Regulations of the Agricultural Society
 704 Castor Oil Cultivation
 705 Remarks on a Drastic Treatment for Thrips in Grenada
 706 Co-Operation
 715 Drainage
 716 Lime Industry
 717 Possible Trade in Yams with Canada
 727 Recent Experimental Work on Cacao
 718 Report of the Fruit Committee
 732 Ankylostomiasis and the Planter
 772 The Establishment of Fruit Industry in Trinidad and Tobago
 775 Disease of Cacao in Trinidad
 776 Notes on Poultry Raising
 777 The Treatment of Ankylostomiasis on the High Seas by the Intensive Method of Thymol Administration
 778 Cacao Thrips in San Thome
 779 Fermentation of Cacao
 780 Plant Protection Ordinance and Its Use
 781 The Common Internal Parasites of Cattle
- W. E. Broadway
 E. Gransaul.
 Mr. F. E. Olivieri.
 Dr. A. H. McShine.
 Mr. E. Radcliffe Clarke
 F. E. Olivieri.
 Prof. A. N. Martin
 A. B. Carr.
 F. E. Olivieri
 G. H. Nunez.
 W. E. Broadway
 F. D. Davies.
 J. Birch Rorer.
 Sir Norman Lamont.
 Atis. Agostini.
 Paul Ad Serre.
 F. W. Ulrich.
 F. D. Davies.
 R. A. Francis.
 H. Meaden.
 Rev. H. Morton.
 Mr. W. G. Freeman, B.Sc.
 Mr. W. G. Freeman, B.Sc.
 Geo. C. Payne, B.A., M.D.
 Mr. W. G. Freeman, B.Sc.
 Wm. Nowell.
 Mrs. F. E. Scott.
 Dr. Geo. Masson.
 F. W. Ulrich
 Jos. de Verteuil
 Frank Stell.
 Capt. H. Metivier.

Proceedings of the Agricultural Society.

MARCH, 1923.

EDITOR'S NOTES AND CLIPPINGS.

Erratum :—In February Number of the "Proceedings" on page 57 the 12th line please read:—"Reaping at 1s. 6d. per barrel for ten barrels—15s."

Weather Conditions and Crop Prospects :—The dry Season was long in setting in this year. The rainfall in January and February was comparatively high and during the present month which is one of the driest of the year, the weather conditions are still unsettled.

The Sugar Factories were late in making a start, but are now in full swing. We learn that the sugar contents of the cane juice are high, but unfortunately the cultural yield is low and the great falling off in the supply of Farmers Canes will cause the Sugar Crop to be short. The prices for Sugar are good and it is to be hoped will help to more than make up for the short crop.

The purchase by the Ste. Madeleine Sugar Co. Ltd. of the La Fortunee group of Estates, will rank the Ste. Madeleine Usine as probably the largest and best equipped Central in the British West Indies.

The delivery of Cacao since January is satisfactory and the shipments to Europe, but more especially to the United States are larger than the previous two years at corresponding date. Reports from different parts of the Island indicate that the Cacao production will not be as large as was anticipated. The prices are still very low and most discouraging. The outlook for Cacao Planters is very gloomy, as there is no immediate expectation that the market will improve.

The prices for Coconuts and Copra are higher, as will be remarked by the market report, and shipments are satisfactory.

The production of rubber seems to have come to a stand-still and shipments are practically nil.

Pamphlet on Fruit Cultivation and opening of the Fruit Depot :—The Society has just issued an interesting pamphlet on Fruit Cultivation with the object of establishing a Fruit Industry in Trinidad and Tobago. Two excellent papers on this subject, by the Director of Agriculture and Mr. A. V. Stollmeyer, were read at the meeting of the Society on the 9th March 1922, and were reproduced in the Proceedings of the Society of that month, as Society papers Nos. 772 and 773. At that same Meeting a permanent Fruit Committee was appointed who reported on the 13th April 1922, as follows and recommended:

1. To open a retail market for local fruits and green vegetables as a branch of the Ground Provision Depot and to be run on the same lines.

2. That a shop be selected in Frederick Street where fruits, green vegetables and plants in pots would be offered for sale. A show window to be secured to make an attractive display.
3. Suitable baskets and boxes to be stocked for sale to enable purchasers to remove what they buy.
4. That an Export Trade be developed with Barbados and Bermuda and that a branch Depot be established in Barbados, if possible.
5. That a pamphlet be published as a special Number of the Proceedings of the Agricultural Society giving concise direction for the cultivation of the best fruits.
6. Tobago to be invited to join.

It is pleasing to state that most of these recommendations have been carried out and the Department of Agriculture has opened a fruit Depot at No. 31 Frederick Street, under the management of Miss D. Eckel, where local fruits of different kinds and green vegetables can be purchased at very reasonable rates. A good start has been made and it is to be hoped that no efforts will be spared to improve the quality of our fruits and supply our long felt want with fruits and vegetables of a high standard of excellence.

We have been informed that the demand for carrots, beet roots, turnips and green peas etc., grown locally is much greater than the supply. It is as well to call attention to this as gardeners may be induced to take up the cultivation of these vegetables with some measure of success.

The important thing is to provide fruits at the right period of maturity and that are always fresh. The Pamphlet gives direction as to the gathering and the

transport and handling of fruits and further information can, at all times, be supplied by the Department of Agriculture.

The consumption of fresh fruits and vegetables in the Tropics has never been well practised. On a health point of view, they should form part of well regulated diet and be eaten daily. This may be due to the inferior quality of a great many of our fruits, which under a proper system of cultivation can be greatly improved.

The Pamphlets are sold at the low figure of one shilling each and can be obtained at the Fruit Depot and at the office of the Secretary of the Agricultural Society, No.. 5 Chacon Street.

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GREATER MEASURE OF PROTECTION FOR BRITISH COLONIES.

—————

The following correspondence has passed between the Agricultural Society and the Secretary of the West India Committee and is here published for the information of Members. It is as well to state that the British Empire Producers' Organization and Mr. H. Hamel Smith, Editor of "Tropical Life," who has kindly consented to represent the Cacao Producers of the Colony, on the Council of this organisation, have been advised as to the resolution adopted at the meeting of the Agricultural Society held on the 8th March and it is to be hoped that the important question of a substantial preference for the products of the Colonies will be taken up with no degree of uncertainty as to the results.

If the Colonies are called upon to contribute to the British Empire Exhibition of 1924 they should at least be able to look forward to the strengthening of the bond

of unity with the Mother Country as well as contributing more materially to a greater measure of prosperity. It might not be out of place here, to mention, as an illustration, the great prosperity of Colonies controlled by the U. S. of America through a proper system of protection to these Colonies.

5 Chacon Street,
Port-of-Spain, 14th March, 1923.

A. Aspinall Esqr., C.M.G.
Secretary West India Committee,
14 Trinity Square,
London, E.C. 3.

Dear Sir,

At the last meeting of the Agricultural Society held on the 8th inst. the following resolution was adopted:

“That this Society desires to warmly support the Chamber of Commerce, the West Indian Chambers of Commerce, and the West India Committee in their efforts to urge the Imperial Government to increase the rate of Customs Preference on British Sugar from one-sixth to one-third off the duties for a period of ten years, and further, urges an undertaking be given that should the duties on British Sugar be reduced during that period, that the substantive preference be not allowed to fall below the present figure, namely £3. 15s. per ton in the case of 96 deg. test sugar.”

“Further, this Society respectfully urges that the parlous condition of the Cacao Industry be also taken into account when considering the question with a view to protecting by preference the industry from undue foreign competition in the home market.”

The following rider was added:

“That in view of the greater importance to this Colony of the Cacao Industry, this Society in supporting

the whole resolution thinks that greater stress should be laid upon the latter part of the resolution."

In consequence of this decision we cabled your yesterday as follows:

'Agricultural Society strongly support representation from Chamber Commerce urging preference and ask that special consideration be given Cacao in view of vital interest to Colony.'

We beg to remind you that on the 12th June 1922 this important matter was brought to your notice and we trust when the Budget comes before the House of Commons, you will do everything in your power to bring it prominently before the Members and for which we shall ever be grateful for your kind assistance.

Yours faithfully,

L. DE VERTEUIL,
Secretary.

The West India Committee,
14, Trinity Square,
London, E. C. 3.
15th March, 1923.

Trinidad Agricultural Society,
Port-of-Spain,
Trinidad.

Dear Sir,

I am in receipt of your cablegram of March 14th:—

"Agricultural Society strongly support representation from Chamber Commerce urging Preference and ask that special consideration be given Cocoa in view of vital interest to colony."

Unfortunately this arrived too late to enable us to hand it to the Duke of Devonshire in person, as our

Deputation waited on His Grace on March 31st. We have, however, forwarded the message to the Colonial Office with a request that it may be submitted to His Grace and attached to the letter endorsing the representations made by the Deputation, a copy of which is enclosed herewith.

Yours faithfully,

ALGERNON ASPINALL,

Secretary.

The West India Committee,
14, Trinity Square,
London, E. C. 3,
5th March, 1923.

His Grace, The Duke of Devonshire,
K.G., G.C.M.G., G.C.V.O.,
Colonial Office,
Downing Street,
S. W. 1.

My Lord Duke

We have the honour to endorse the representations made by the members of the Deputation of the West India Committee which was received by your Grace at the Colonial Office on Thursday, March 1st.

2. The West India Committee desire very earnestly to urge that the request of the West Indies in respect of tariff preference on sugar, the favourable consideration of which was strongly recommended by the Right Hon. Edward Wood, M.P., in his Report, dated May 1922 (Page 48) may be conceded.

3. This request was that the present rate of preference in the United Kingdom might be doubled, i.e., increased from one-sixth to one-third over a period of years, and that an undertaking might be given that should the Sugar Duties be reduced during

that period, the substantive preference on British Sugar might not be allowed to fall below the present figure—namely in the case of 96 deg. test sugar, approximately £3 15s. per ton.

4. The Committee regard the adoption of this recommendation as essential if confidence is to be restored in our West Indian Colonies and British Guiana, whose great staple is still sugar. The guarantee of the maintenance of the percentage rate of preference for ten years already given by His Majesty's Government, and embodied in a letter dated March 9th, 1922 which was addressed by Your Grace's predecessor, as Secretary of State, to the Governors of the West Indian Colonies (the observance of which guarantee will no doubt be regarded as a moral obligation by His Majesty's Ministers, to whatever political party they may belong) has admittedly been helpful. What, however, is required is a guarantee of the maintenance of the substantive value of the preference rather than of the percentage since unless this were conceded, a reduction in the Sugar Duties would be accompanied ipso facto by a reduction in the preference. In this connection we would respectfully remind Your Grace that under the terms of the Canada-West Indies Trade Agreement 1920, signed at Ottawa on June 18th of that year and subsequently ratified by the Governments of all the signatories, with the exception of Bermuda, the tariff reference afforded to British West Indian Sugar entering the Dominion of Canada is definitely fixed at an irreducible figure and not on the basis of a percentage. What the Committee now ask is that the value of the preference and not the percentage merely, may be similarly fixed in the United Kingdom.

5. Whilst it is true that during the past few weeks there has been a sharp rise in the price of Sugar, this is recognised as having been largely due to the action of speculators in the United States, and we would respectfully submit to Your Grace that this rise in itself emphasizes the need of securing the development of a British

Sugar Industry which would render the United Kingdom less dependent upon foreign sources of supply for one of its most essential foodstuffs. Before the war, as Your Grace is probably aware, the United Kingdom was mainly dependent on the Continent of Europe for its sugar supply with the result that in the year 1911, when there was a drought on the Continent, consumers had to pay what were then regarded as excessively high prices for sugar. Now she is dependent largely on Cuba, whose crop amounting to nearly 4,000,000 tons a year, practically controls the situation, and Your Grace will readily understand that in the event of a widespread drought, for example, occurring in Cuba followed by a reduction in the great output of the island, there might be a serious shortage of sugar in the United Kingdom, and, consequently, famine prices with violent fluctuations which would not engender confidence in the British sugar industry.

6. Another aspect of the question to which we would respectfully draw Your Grace's attention is the political one. During the past few months there has been an increasing tendency in certain sections of the American press to create an atmosphere in favour of transferring the British West Indies to the United States. We are convinced that no British Government could envisage without serious concern the temptations held out by such propaganda to the people of the West Indies (who have so often proved their loyalty to and their affection for the motherland) to reflect on the material advantages which might accrue to them from such a transfer. The most effective means of countering this noxious propaganda would, in the opinion of The West India Committee, be by developing in every possible manner the commercial bonds between the British West Indies and the mother-country by a more generous measure of tariff preference in return for the preference ranging from 25 to 50 per cent. off the duties now given by those colonies on all dutiable articles imported from the United Kingdom.

7. In this connection we would point out that the British West Indian planters are constantly reminded that sugar produced in Porto Rico and the American Virgin Islands, like that of Hawaii, and to the extent of 300,000 tons annually, the Philippines, is admitted to the United States duty free, which means a preference of £8. 4s. per ton over Cuban sugar, and £10. 5s. per ton over sugar from elsewhere, whilst they themselves are granted a preference of one-sixth only off the duty, or, at present, £3. 15s. per ton for 96 deg. test sugar in the United Kingdom. This point was emphasized in a cablegram from its correspondent at Kingston, published in "The Times" of February 24th last, a copy of which is appended. It is also emphasized by the Jamaica Imperial Association in a cablegram dated March 1st which, with similar messages from the Associated West Indian Chambers of Commerce, the Trinidad Chamber of Commerce, the Barbados Chamber of Commerce, the Trinidad Sugar Manufacturers' Association, and the British Guiana Sugar Planters' Association are also enclosed herewith.

8. In their message the Jamaica Imperial Association point out that credit and confidence, shattered by the fiscal policy of the United Kingdom in the past, can only be completely restored by treatment approximating to that offered by the United States to her tropical territory overseas.

9. The West India Committee, at the request of the Trinidad Chamber of Commerce, also urge that special consideration may be given to Cocoa on importation into the United Kingdom from within the Empire, in view of the present parlous state of that industry in Trinidad, and they desire to emphasize the fact that the reduction of the duty on Cocoa in the United Kingdom last year, which resulted in a decrease of the substantive value of the preference, has thrown the door open to competition with Guayaquil, Bahia and Ecuador Cocoa.

10. They also desire to lay stress on the paralysing effect which the present excessively high Spirit Duties

have on the British Rum Industry, and they propose in a subsequent letter to submit to Your Grace statistics bearing out the representations which they made to you on this subject.

11. In conclusion, while thanking Your Grace for having received the Deputation and for having accorded to it so sympathetic a hearing, we would add that the members present learnt with much satisfaction Your Grace's statement that you would represent their views to your colleagues in the Cabinet and the intimation which you gave to them that the whole question of Imperial Trade would be considered in its broadest aspect.

We have the honour to be,

My Lord Duke,

Your Grace's most obedient, humble servants,

(Sgd.) R. RUTHERFORD, Chairman.

(Sgd) ALGERNON ASPINALL, Secretary.

THE "TIMES" FEBRUARY 24TH, 1923.

JAMAICAN CRITICISMS OF COLONIAL OFFICE.

(FROM OUR CORRESPONDENT.)

Kingston, February, 22.

The Legislative Council has gone into Committee to consider the proposed Constitutional reforms.

The preliminary discussion on the general question of enlarged privileges was marked by the strong expression on the part of several elected members of the opinion that a new constitution was not the only thing Jamaica required. Great Britain's fiscal policy, they declared, was ruinous to the West Indies. The economic life of the people was neglected, while in places in the Carribean under American influence all classes were prosperous.

The feeling was gaining ground that Great Britain desired to keep the West Indies in a condition of economic slavery.

The people could not be expected to remain loyal when they lived all the time in a state of poverty. The peaceful penetration by foreigners which was proceeding in these Colonies could only be checked by Free Trade within the Empire. The broadest possible preference was needed to secure the West Indian market for British manufacturers and give the Colonies the position they desired in the home market. Dissatisfaction was expressed with the attitude towards the West Indies of the Colonial Office, which did not seem to be interested in the aspirations of the people.

The Council is likely to accept the main principles of Mr. Wood's suggestions. There is a strong difference of opinion as to whether the elected members should give up the right of vetoing financial measures by the vote of nine of their number.

COPIES OF CABLEGRAMS RECEIVED REGARDING SUGAR PREFERENCE.

THE JAMAICA IMPERIAL ASSOCIATION,
MARCH 1ST, 1923.

“ Empire strongly urges greatly increased preference for tropical products in British market. Credit and confidence shattered by fiscal policy of past can only be completely restored by treatment approximating that of United States to its tropical colonies. If Empire to be self-supporting in Sugar preference say seven pounds per ton necessary. Merely to keep going absolutely necessary have preference one third with guaranteed minimum equal to present preference three pounds fifteen shillings on ninety six sugars. Increased preference will doubtless result in larger preference on British imports thus paving way to what we conceive be true objective Free Trade

between British and her tropical possessions. In advancing arguments for increased preference refer Page forty-seven Wood's Report also to fact that local Legislature voluntarily imposed duty on foreign goods formerly on free list in order provide preference on British goods."

ASSOCIATED WEST INDIAN CHAMBERS OF
COMMERCE, FEBRUARY 20TH.

"Associated West Indian Chambers of Commerce strongly emphasize necessity urging Government adopt Wood's recommendations and if possible obtain increase preference Sugar Duties to one third for ten years in event reduction present amount be stabilized Trinidad strongly urges special consideration for Cocoa view present parlous condition this of vital importance."

TRINIDAD CHAMBER OF COMMERCE, INCORPORATED,
FEBRUARY 16th.

"Following Resolution passed to-day Chamber strongly supports urging Imperial Government increase rate of preference British sugar to one third of duty for period ten years. Further urges undertaking be given that should duties on British sugar be reduced during this period substantive preference be not allowed to fall below present amount. Chamber further urges special consideration for Cocoa Industry account parlous condition with view protecting Industry by preference from undue foreign competition in home market. Support of local Commercial Bodies being solicited."

BARBADOS CHAMBER OF COMMERCE,
FEBRUARY 26TH, 1923.

"Whereas the increasing of the rate of preference on British West Indian Sugars on entry into the United Kingdom and the stabilising of such preference so that

if the duties are lowered the actual amount of preference would not diminish, would undoubtedly recreate and engender confidence in the Sugar Industry of this Island

Be it Resolved that this Chamber strongly urges His Majesty's Government to give effect to the recommendation contained in the report of the Hon. E. F. L. Wood, M.P. (at that time Parliamentary Under Secretary of State for the Colonies) on his visit to the West Indies and British Guiana in December 1921 to February 1922, with regard to stabilising the preference so that the present amount be maintained."

TRINIDAD SUGAR MANUFACTURERS' ASSOCIATION, MARCH 2ND, 1923.

"Strongly support resolution regarding preference cabled by Chambers of Commerce."

BRITISH GUIANA SUGAR PLANTERS' ASSOCIATION, FEBRUARY 25TH.

"Whereas increasing the rate of preference for British West Indian sugars on entry into the United Kingdom, and establishing such preferences so that if the duties were lowered the actual amount of the preference would not diminish, would undoubtedly recreate and engender confidence in the sugar industry in this colony, it is resolved that the Council strongly urges His Majesty's Government to give effect to the recommendation contained in the report of Major Wood (formerly Under-Secretary for the Colonies) on his visit to the West Indies and British Guiana with regard to establishing preference so that the present amount be maintained."

Abstract of Accounts for Year Ended 31st December, 1922.

	\$	1,091.12	
By Printing Account	"	53.67	
To Balance Brought Forward from 31.12.21 ...	"	100.00	
Government Grant	"		
Subscriptions	"		
Advertisements	"		
Sale of Pamphlets and Proceedings	"		
Interest on Savings Deposit ...	"		
		\$2,106.10	
Grant in aid Veg. Show, Princes Town	"	2,880.00	
Subscriptions to British Empire Producers' Organization and West India Circular	"	361.20	
Fire Policies	"	335.00	
Counting, sorting, packing materials under Prince's Bldg & Repairs to Bk-case Preparing Index for 1921	"	8.91	
Typewriting Accounts and Reports	"	56.01	
Stationery, telegrams, repairs to clock	"		
Advertising in Port-of-Spain Gazette	"		
Postage, Porterage, Telephone	"		
Care-takers Council Room & Princesses Bldg.	"		
Secretary and Assistant	"		
Rent of Office	"		
To Bal. Col. Bank Current Account...\$ 721.77	"		
Savings Account... 2,286.88	"		
		\$5,747.22	

Submitted to a Meeting of the Committee of Management in the Council Chamber 11th January, 1923 and ordered for audit.

W. S. E. BARNARDO—President.
L. DE VERTEUIL,—Secretary.

Examined and found Correct.

R. G. BUSHÉ,

Auditor-General.

GENERAL MEETING.

At the General meeting of the Society held in the Council Chamber on the 8th March 1923, at 1.30 p.m.

Present :—W. S. E. Barnardo, President in the Chair, Revd. H. H. Morton, Hon'ble A. B. Carr, Messrs. W. C. Jardine, Wm. Nowell, W. G. Freeman, E. Radcliffe Clarke, F. Le Blanc, J. Lickfold, C. Fleming, J. Mungal, H. W. Brathwaite, C. Cleaver, Captain Gooden-Chisholm, A. G. Hamlyn, A. J. Hamlyn, S. Medford, A. A. Sobrian, Dr. L. Shannon, V.S., G. C. Wyatt, A. S. Cunliffe, A. A. Cipriani, C. Palmer-Chizzola, Lieut.-Col. J. H. Collins and L. De Verteuil, Secretary.

Minutes :—The Minutes of the Meeting of the 8th February were confirmed.

Election of New Members :—Messrs. H. Kernahan and Gajadharsingh were elected Members.

Correspondence :—A letter from the General Secretary of the British Empire Producers' Organization was read informing the Society that he was getting in touch with Mr. Hamel Smith and would write when his nomination as Co-opted Member of their Council was decided.

Letters were received from Major E. A. Belcher, Assistant General Manager and A. Aspinall, C.M.G., Commissioner West Indian and Atlantic Group Committee of the British Empire Exhibition 1924, in connection with the visit of Hon'ble F. M. B. Fisher.

At the suggestion of H. E. the Governor, the Secretary informed the Meeting, that 22nd March had been fixed for a Special Meeting of the Society to meet Mr. Fisher.

Preference on British Sugar and Cacao :—A letter was read from the Chamber of Commerce requesting the Agricultural Society to support the following resolution:

“ That this Society desires to warmly support the Chamber of Commerce, the West Indian Chambers of Commerce, and the West India Committee in their efforts

to urge the Imperial Government to increase the rate of Customs Preference on British Sugar from one-sixth to one-third off the duties for a period of ten years, and further, urges an undertaking be given that should the duties on British Sugar be reduced during that period, that the substantive preference be not allowed to fall below the present figure, namely, £3. 15s. per ton in the case of 96 deg. test sugar."

"Further, this Society respectfully urges that the parlous condition of the Cacao Industry be also taken into account when considering this question with a view to protecting by preference the industry from undue foreign competition in the home market."

The Chairman moved that the resolution be adopted by the Society. This was seconded by Hon'ble A. B. Carr who thought that the word "parlous" in the second part of the resolution, should be replaced by the word "depressed," but this was not insisted upon.

Mr. Carr spoke of the ill effects that had been produced on the community by certain remarks on the Cacao Planters, made in the Press by Mr. Wood, a Director of the Colonial Bank and the harm that this could do to the Colony. Messrs. E. Radcliffe Clarke and Captain A. A. Cipriani thought also that such remarks should not be allowed to go unchallenged and Captain Cipriani asked leave to have Mr. Wood's statement discussed at once, but this was not granted.

Mr. Jardine moved that the following rider be added to the second part of the resolution:

"That in view of the greater importance to the Colony of the Cacao Industry, greater stress should be laid upon the latter part of the resolution." This was agreed to and as amended, the resolution was unanimously adopted.

The Goat Society :—The President said that the Committee of Management had before them an application from Dr. L. Shannon, V.S., for leave to affiliate the Trinidad Goat Society to the Agricultural Society and in virtue of the powers vested in the Committee to make rules and regulations including the conditions of Membership of the Society they had decided that the Goat Society could be affiliated on the payment of an annual subscription of \$2.40 a year.

Dr. L. Shannon said that his Society would readily agree to the conditions and that he would like to bring to the notice of the Society, that if a Goat Club is to operate properly, they should promote annual shows, which would create and help to maintain animal husbandry.

The Chairman answered that they could not promise, at this stage, to hold annual shows, but that the suggestion may be considered when the time comes.

Captain A. A. Cipriani, said that the husbandry of goats should be encouraged, on account of their splendid milk quality, particularly in a place like Trinidad where there was such a high infantile mortality, due to the bad state of the milk supply.

Mr. Mungal's Motion :—Mr. Mungal's motion postponed from last Meeting was taken up. After Captain Gooden-Chisholm and Mr. C. Fleming had spoken to prove the futility of the arguments put forward by Mr. Mungal, as to the stability of labour and that the Immigration Department be made to undertake the supervision and protection of labourers, Mr. Mungal answered, but he did not succeed to convince Members to adopt his motion and it was rejected.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

SPECIAL MEETING.

At a specially convened meeting of the Chamber of Commerce, the Board of Agriculture and the Agricultural Society, held in the Council Chamber on the 23rd March, 1923, at 2 p.m.

Present: His Excellency Sir S. H. Wilson, K.C.M.G., Governor, in the Chair. The Honourable F. M. B. Fisher, ex-Minister for Customs and Marine, New Zealand, and Member of the Executive Council of the British Empire Exhibition, sat to the right of the Governor. The following members represented the Agricultural Society: W. S. E. Barnardo, President, Hon. Rev. C. D. Lalla, Hon. A. B. Carr, Sir Francis Watts, Revd. H. Morton, Messrs. E. Radcliffe-Clarke, A. J. Hamlyn, A. G. Hamlyn, T. H. Scott, J. Lickfold, Captain A. A. Cipriani, J. Mungal, A. Cory Davies, S. Medford, F. J. Le Blanc, Lieut.-Colonel Collens, C. Cleaver, A. Mendes, A. V. Stollmeyer, M. Hamel-Smith, J. J. McLeod, A. A. Sobrian, C. E. Drayton, J. D. Hobson, C. H. Pierre, G. C. Wyatt, T. Boyd, Dr. E. Prada, C. Palmer-Chizzola, M. P. Maillard, J. Forbes, H. W. Brathwaite, W. Dickson, H. I. Jeffers, and L. de Verteuil, Secretary.

Introducing the Honourable F. M. B. Fisher, His Excellency said that after having heard what the promoters of the Exhibition had in view, members present would agree with him that the Colony must reconsider its decision and participate in the Exhibition, in spite of the financial circumstances of the Colony. A colony of the importance and of the size of Trinidad could not afford to stand aloof from the great undertaking which cannot but promote trade within the Empire and tend to link closer together the component parts of the Empire. He would be pleased to receive representations from the Commercial and Agricultural Bodies about taking part in the Exhibition.

The Hon. F. M. Fisher addressed the meeting and explained the organization of the Exhibition and how

the money necessary for such a colossal undertaking was found, by appealing to businessmen of the Country and in raising guarantees to the extent of £1,200,000 to start with and getting the sanction of the Dominions to join. That Exhibition was not an ordinary one, it was not to be a transient thing, they had secured 216 acres, free-held and vested in Trust for the development of Imperial Trade—the buildings will be permanent. He appealed that Trinidad could not be left out. The Mother Country, the heart of the Empire, must show to the world that with her Colonies she can produce everything she needed. He showed what the other Colonies were doing and explained that whatever the Colony consented to give could be paid in two instalments, one-half this year and the other half next year. He wanted to feel that as a result of his visit, Trinidad was going to be represented.

Hon. Alex Fraser moved a vote of thanks to Mr. Fisher and said he could not see how one of the principal colonies of the West Indies could stand out, after hearing what the others had done.

His Excellency said he associated himself with the vote of thanks to Mr. Fisher and for the impressive way he had explained the scope and object of the British Empire Exhibition.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

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REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

FYZABAD.

At a Meeting of the Fyzabad District Agricultural Society, held on the 5th February, 1923 present were :—
Messrs. H. Meaden, Chairman; F. Bhola, Ali Mohomad, William Dobarry, John Kokeram, Pherangie, Chas.

Goberdhan, N. P. Gower, Raghoonath, Ganga Bissoon, A. Benjamin, A. Havelock, Ramcheran Maharaj, O. Sumesir, D. Sampath, Kenneth Benjamin, and C. Niamath.

Minutes :—The Minutes of the previous Meeting were read and confirmed.

The Chairman announced to the Meeting that the important thing to be done was the election of Officers for the current year which resulted as follows:—M. H. Meaden, Chairman; C. Niamath, Secretary; N. P. Gower, C. Goberdhan, S. Harnaryan, Ramcharan Maharaj, Ali Mohomad, Members of Committee.

The following were also agreed upon:—

(a) To appoint a Vice-Chairman when the Chairman is absent.

(b) Three of the Committee Members to form a quorum.

(c) Seven members at least to be present at a general meeting.

(d) To hold meetings on the first Tuesday of each month.

The Secretary was instructed to pay an affiliation fee to the Parent Society, to write a letter of Condolence to Mrs. Pinder and to place on record the good work done by Mr. Pinder, as Agricultural Advisor of the District.

Chairman's Remarks :—He trusted members would keep up their attendance and increase their interest at the meetings. With a view of furthering the improvement of the Society by adopting measures of agricultural utility.

A vote of thanks to the Chairman was proposed by Chas. Goberdhan and seconded by Phirangi.

WINDWARD (ROXBOROUGH) TOBAGO.

Minutes of General Meeting held at the Roxborough Court House on 14th February, 1923.

Present :—Mr. A Jones, Vice-Chairman presiding; Messrs. J. B. Murray, C. H. Dann, W. B. Murray, H. Fraser, Mrs. M. Connor, Hendy Melville, Calvin Edwards, Nathaniel Holder, Eassau Connor and F. J. B. Henry, Hon. Secretary.

Minutes :—The minutes of the last meeting were read. It was moved by Mr. H. Fraser, and seconded by Mr. N. Holder that they be confirmed. They were confirmed by an unanimous vote.

Vice-Chairman's Remarks :—The Vice-Chairman, Mr. Jones, in opening the meeting said he is sorry that Rev. Pilgrim, the Chairman, is absent, he feels it is his duty to say that the Society must sympathise with the cause of the Chairman's absence, and that he thinks it would be a very hard thing for this Society to secure a person who would take the same interest in its welfare as the chairman is doing. Mr. W. B. Murray associated with what the Vice-Chairman had said.

Correspondence :—Letter from Mr. Kenneth Reid commenting on the Show. This letter raised a discussion on the recent Show and it was moved by Mr. H. Fraser seconded by Mr. C. H. Dann "that a small committee be formed now to arrange things for a future Show, so that the experience gained by this Show would not be forgotten and mistakes avoided.

Report of the Secretary on the Show :—The Secretary read the Report on the Show. It was moved by Mr. H. Melville seconded by Mr. N. Holder that the Society accept the Report. This was carried unanimously.

Vote of Thanks :—Mr. A. M. Skinner moved a hearty vote of thanks to the Chairman and Secretary for having worked so hard arranging the show and bringing things to a successful issue. He further said

that it was marvellous how the Chairman and Secretary were able to get through the amount of work that they did.

This vote of thanks was seconded by Mr. J. B. Murray and was carried unanimously.

Committee Elected :—A Committee comprising of five members, i.e. three from the Society with power to co-opt two non-members who are interested in agriculture, were appointed: viz:—Mr. A. M. Skinner, Mr. J. B. Murray and Mr. H. Fraser.

It was moved by Mr. Skinner and seconded by Mr. H. Fraser “that the Society send a vote of thanks to Messrs. Reid and Smith for the work they did in connection with the Show, and also that all the persons (non-members) of this Society who helped to make the Show a success be thanked by letter. This was carried unanimously.

Election of Officers for the Year 1923 :—

Chairman : It was moved by Mr. H. Fraser, seconded by Mr. Holder that Rev. Pilgrim, B.A., be re-elected Chairman, unanimously carried.

Vice-Chairman : It was moved by Mr. H. Melville, seconded by A. M. Skinner and carried unanimously that Mr. A. Jones be re-elected Vice-Chairman.

Deputy Vice-Chairman : Moved by F. J. B. Henry, seconded by H. Fraser that J. B. Murray be Deputy Vice-Chairman was carried unanimously.

The Secretary was re-elected by an unanimous vote, moved by H. Fraser seconded by Mrs. M. Connor.

Committee :—Roxborough: H. Fraser, A. M. Skinner, J. A. Fraser, R. Davidson. Pembroke: W. B. Murray, G. Murray, W. Rodriguez. Delaford: R. Douglas, H. Melville. Belle Garden: William Harper. Argyle: N. Holder.

It was carried unanimously that five form a quorum for all legal purposes.

All the Gentlemen present who were elected to office thanked the meeting very much for having elected them to serve and promised to do their best to promote the welfare of the Society by every possible means in their power.

Notice of Motion :—Mr. Fraser gave notice of motion to the effect “ that this Society discuss the question of the Fruit Industry and be prepared if necessary to write to the Parent Society asking for full particulars.”

Mr. J. B. Murray pointed out that we need here in Tobago (1) A proper Coastal Service and (2) Proper Mail facilities.

The Vice Chairman thanked Mr. J. B. Murray for the whole-hearted interest he is taking in the welfare of the people.

Mr. Murray accepted thanks and promised to do all in his power to forward the prosperity of the Island.

At the Meeting of the Windward District Agricultural Society held on the 13th March, 1923.

Present :—A. Jones Esq., Vice-Chairman presiding. Messrs. J. B. Murray, J.P., Deputy Vice-Chairman; R. P. Harries J.P., H. Fraser, H. Melville, N. Holder, R. Douglas, A. Davidson, J. A. Fraser and F. J. B. Henry, Secretary.

Minutes :—The Minutes of the last Meeting were read and their confirmation was moved by Mr. H. Fraser seconded by H. Melville, and were unanimously confirmed.

Correspondence :—A letter was received from the Chairman, Rev. Pilgrim, stating his inability to attend the Meeting owing to ill-health. He also made two proposals in his letter which he desired to have discussed.

1. The paying of a levy of 2|- per member to defray necessary expenses.

2. The changing of the hour of Meeting from 7 p.m. to 4 p.m. to suit the convenience of most of the members.

Before these points were discussed a vote of sympathy was moved by the Secretary, seconded by Mr. J. B. Murray in favour of the Chairman. It was then passed that the Chairman be informed that the Meeting sympathised with him and wished his speedy recovery.

Resolutions :—(1) It was moved by Mr. J. A. Fraser, seconded by Mr. R. P. Harries “ that each member pay a minimum levy of 2|- to cover expenses.”

(2). Mr. J. A. Fraser moved, and Mr. A. Davidson seconded “ that in view of creating more interest in the Society and stimulating a fuller attendance at its Meetings this Society changes its hour of Meetings from 7 p.m. which is proved inconvenient to most members, to 4 p.m. when it is expected that a large number would be present at its Meetings.”

These two motions were carried unanimously.

Elections :—The following gentlemen were unanimously elected to membership, being duly proposed and seconded: Messrs. Evans Pope, Twentin Wolfe, Uriah George, Jas. Anderson, Richard Jack, Charles Jack.

Mr. J. B. Murray, the Deputy Vice-Chairman expressed his pleasure at the increasing membership of the Society and hopes that the members would ever increase.

Re Fruit Industry :—Mr. H. Fraser, seconded by Mr. R. Douglas moved “ that this Society communicates with the Parent Society with a view to finding out full particulars as regards the Fruit Industry, which movement this Society was asked to co-operate with months ago: also to find out what preparations are made for the marketing of vegetables; and how to prepare them for market in Port-of-Spain.”

Mr. J. B. Murray furnished the Meeting with a scheme proposed to His Excellency the Governor by him, which he hoped would materially affect the foregoing resolution, i.e. "that the steamer resumes its old route: Scarborough to Windward South one week and Scarborough to Windward North the other week, this he thought would settle the question of transportation.

Field Demonstration :—When discussing the question of Field demonstration as a means of educating the members into more practical and up-to-date methods of planting it was decided to ask Mr. Orde of the Louis D'Or Estate to allow the Society the privilege of visiting the Estate.

The following resolution was then passed proposed by Mr. J. B. Murray, seconded by Mr. R. P. Harries and carried unanimously:—

"That in view of the fact that such good methods are carried out at the Louis D'Or Estate in cultivation generally, this Society respectfully approaches Mr. Orde and ask his permission to visit the Estate."

Next Meeting :—For the next Meeting, upon the request of the members present, Mr. J. B. Murray promised to give a paper on some interesting topic dealing with agriculture.

The Vice-Chairman, Mr. Jones, thanked Mr. Murray for the interest he is taking in the Society and for the people generally and hoped that other gentlemen would follow his example to the betterment not of this part of the island only, but of the whole of Tobago and further thanked him for so readily accepting to lecture at the next Meeting.

Vote of Thanks :—Mr. Fraser seconded by Mr. R. Douglas moved a hearty vote of thanks to the Vice-Chairman for presiding over the Meeting.

There being no other business the Meeting terminated when the National Anthem was sung.

TRINIDAD MONTHLY PRODUCE REPORT AND STATISTICS.

COMPILED BY EDGAR TRIPP & Co.

Port-of-Spain, 31st March, 1923.

CACAO.—Receipts have been exceedingly heavy, and shipments for the first three months of this year total 31,121,755 lbs., as compared with 16,277,291 lbs. and 18,870,795 lbs. during the corresponding periods of 1922 and 1921 respectively.

Prices having declined considerably in Europe and America, the local demand is very poor in consequence, and both these factors have had a most depressing effect upon our market; which closed at \$9.00 to \$9.25 for "Plantation" and \$8.75 for Middling Red" qualities, with a downward tendency.

Recent arrivals from Venezuela have secured abnormal prices, such as \$12.00 per fanega, brought about by speculators selling short and having to cover within a limited period. It is expected however, that as soon as this temporary demand is satisfied, values will decline very sharply.

SUGAR.—The crop continues to be reaped under favourable weather conditions. There has been a slight break in the dry season, which is very welcome to planters, but, which, at the same time is not sufficiently severe as to interfere with reaping operations.

Demand from foreign markets continues to be firm, with a slight, but general, improvement in prices.

MOLASSES.—It was hoped that there would have been an advance in prices in view of the general improvement of Sugar in the foreign markets, but unfortunately, there has been no change.

There still remains a portion of last year's crop of Vacuum Pan Quality for disposal.

COCONUTS.—Local prices advanced to \$18 and \$12 per thousand for Selects and Culls respectively. Enquiries from foreign markets are reported to be few, however.

COPRA.—The demand from foreign markets is very firm, and in consequence, local prices advanced to as much as \$4.80 per 100 lbs. during the month.

CACAO.

Shipments of Trinidad Cacao During the Month of March, 1923.

Destination.				Weight in lbs.
To all countries	..	..		13,797,884 ..
Shipped previously	..	..		17,323,871 ..
				<hr/>
Total from 1st January	..	..		31,121,755 ..
				<hr/>
To same date 1922	..	..		16,277,291 ..
„ „ 1921	..	..		18,870,795 ..
„ „ 1920	..	..		30,861,630 ..
„ „ 1919	..	..		13,818,683 ..
„ „ 1918	..	..		18,683,202 ..
„ „ 1917	..	..		31,512,350 ..
„ „ 1916	..	..		20,062,564 ..
„ „ 1915	..	..		24,324,943 ..
„ „ 1914	..	..		29,743,676 ..
„ „ 1913	..	..		20,018,604 ..
„ „ 1912	..	..		24,410,396 ..
„ „ 1911	..	..		17,364,848 ..
„ „ 1910	..	..		21,370,585 ..
„ „ 1909	..	..		21,472,378 ..
„ „ 1908	..	..		19,969,706 ..

London Quotations for Ordinary:—

1st March per cwt.	..	..	56/—58/—
31st " " "	..	..	56/—58/—
To same date 1922	..	..	67/—70/—
" " 1921	..	..	62/—
" " 1920	..	..	137/—144/—
" " 1919	..	..	90/—
" " 1918	..	..	97/—94/—
" " 1917	..	..	81/—87/—
" " 1916	..	..	90/—
" " 1915	..	..	81/—96/—
" " 1914	..	..	63/—61/—
" " 1913	..	..	75/—73/—
" " 1912	..	..	57/—56/6
" " 1911	..	..	58/—57/—
" " 1910	..	..	56/—56/6
" " 1909	..	..	59/6—60/—

New York Quotations :—

1st March per lb.	..	..	9¾c.
31st " " "	..	..	9¾c.
At same date 1922	..	..	12½c.—11¾c.
" " 1921	..	..	10c.—8½c.
" " 1920	..	..	20¼c.
" " 1919	..	..	18c.—19c.
" " 1918	..	..	14½—14¼—14½
" " 1917	..	..	14c.—13½c.

Foreign Cacao Shipped During the Quarter
Ended 31st March, 1923.

To all Countries	..	..	1,985,506 lbs.
To same date 1922	..	..	1,780,320 "
" " 1921	..	..	1,188,196 "
" " 1920	..	..	2,552,489 "

SUGAR.

Shipped for the Month of March, 1923.

To all countries	..	..	13,557,293 lbs..
Shipped previously	..	..	991,731 ..

Total from 1st January	14,549,024 ..
------------------------	----	----	---------------

To same date 1922	..	..	27,894,350 ..
" " 1921	..	..	9,600,698 ..
" " 1920	..	..	24,600,749 ..
" " 1919	..	..	19,156,806 ..
" " 1918	..	..	7,099,576 ..

London Quotations for Demerara Crystals:—

1st March per cwt.	..	..	54/—55/—
10th " " "	..	..	54/—55/6
20th " " "	..	..	54/—56/—
31st " " "	..	..	54/—56/—

At same date 1922	..	..	42/— —44/—
" " 1921	..	..	59/— —62/—
" " 1920	..	..	100/5 —100/—
" " 1919	..	..	57/9
" " 1918	..	..	46/9
" " 1917	..	..	40/1½ —43/1½
" " 1916	..	..	40/— —38/6
" " 1915	..	..	25/3 —27/—
" " 1914	..	..	14/6 —12/6
" " 1913	..	..	15/6 —17/9
" " 1912	..	..	21/6 —19/3
" " 1911	..	..	15/— —16/3
" " 1910	..	..	19/— —20/—
" " 1909	..	..	14/3 —15/3

New York Quotations, Crystals:—

1st March per 100 lbs.	.. ..	6.72
6th " " " "	..	7.15
7th " " " "	..	7.28
10th " " " "	..	7.40
13th " " " "	..	7.53
14th " " " "	..	7.40
16th " " " "	..	7.50
19th " " " "	..	7.40
20th " " " "	..	7.34
21st " " " "	..	7.22
24th " " " "	..	7.34
31st " " " "	..	7.41

At same date 1922	.. ..	3.60— 3.86
" " 1921	.. ..	5.17— 6.27
" " 1920	.. ..	10.24—13.04
" " 1919	.. ..	No Quotation.
" " 1918	.. ..	6.02½
" " 1917	.. ..	5.02—5.89

MOLASSES.

Shipped for the Month of March, 1923.

To all countries	.. ..	Nil.
Shipped previously	.. ..	26,000 gals.
		<hr/>
Total from 1st January	.. ..	26,000 ..
		<hr/>
To same date 1922	.. ..	48,881 ..
" " 1921	.. ..	19,378 ..
" " 1920	.. ..	189,274 ..
" " 1919	.. ..	75,571 ..
" " 1918	.. ..	200,096 ..

RUM.

Shipped for the Month of March, 1923.

To all countries	..	..	48	„
Shipped previously	..	..	781	„
				<hr/>
Total from 1st January	..	..	829	„
At same date 1922	..	..	754	„
„ „ 1921	..	..	96,891	„
„ „ 1920	..	..	9,292	„
„ „ 1919	..	..	682	„
„ „ 1918	..	..	2,082	„

COCONUTS.

Shipped for the Month of March, 1923.

To all countries	...	..	1,247,335	nuts.
Shipped previously	..	..	1,866,775	„
				<hr/>
Total from 1st January	..	..	3,114,110	„
To same date 1922	..	..	4,718,409	„
„ „ 1921	..	..	4,433,227	„
„ „ 1920	..	..	6,531,796	„
„ „ 1919	..	..	5,343,903	„
„ „ 1918	..	..	3,707,285	„
„ „ 1917	..	..	2,878,303	„
„ „ 1916	..	..	3,157,860	„
„ „ 1915	..	..	2,764,273	„
„ „ 1914	..	..	4,116,355	„
„ „ 1913	..	..	2,457,964	„
„ „ 1912	..	..	4,518,120	„

Foreign Coconuts Shipped During the Quarter
Ended 31 st. March, 1923.

To all Countries	.. ..	2,247 nuts.
To same date 1922	.. ..	14,875 "
" " 1921	.. ..	Nil.
" " 1920	.. ..	442,005 "

COPRA.

Shipped for the Month of March, 1923.

To all countries	.. ..	856,470 lbs.
Shipped previously	.. ..	1,314,375 "

Total from 1st January	2,170,845 "
------------------------	-------	-------------

To same date 1922	.. ..	1,281,480 "
" " 1921	.. ..	1,194,130 "
" " 1920	.. ..	524,600 "
" " 1919	.. ..	400,360 "
" " 1918	.. ..	1,660,888 "
" " 1917	.. ..	1,568,174 "
" " 1916	.. ..	666,342 "
" " 1915	.. ..	1,098,244 "
" " 1914	.. ..	328,736 "
" " 1913	.. ..	428,812 "
" " 1912	.. ..	464,251 "

ASPHALT.

Shipped for the Month of March, 1923.

To all countries	.. ..	14,823 tons.
Shipped previously	.. ..	23,255 "

Total from 1st January	38,078 "
------------------------	-------	----------

To same date 1922	..	..	25,523	„
„ „ 1921	..	..	43,433	„
„ „ 1920	..	..	21,620	„
„ „ 1919	..	..	21,542	„
„ „ 1918	..	..	8,985	„
„ „ 1917	..	..	23,494	„

OIL.

Shipped for the Month of March, 1923.

To all Countries	..	..	2,557,486	gals.
Shipped previously	..	..	17,482,410	„
Total from 1st January	..	..	20,039,896	„

To same date 1922	..	..	10,950,490	„
„ „ 1921	..	..	11,531,784	„
„ „ 1920	..	..	9,224,424	„
„ „ 1919	..	..	12,316,793	„
„ „ 1918	..	..	9,309,751	„
„ „ 1917	..	..	6,279,658	„



Rainfall for March, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL REQUERIDO, MANZANILLA		ERIN		KING'S BAY TOBAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1	05
2	03
3	19	...	...
4
5	02
6	09
7
8	01	...	25	...	21
9	01	...	...	...	...
10
11	...	03	...	15	...	16	...	19
12	01	...	...	...	30
13	07	...	08	...	...
14
15	08	...	...	...	...
16	...	03	...	01	...	...	...	...
17	...	09	...	15	...	10	...	...
18	...	14	...	30	...	03	...	45
19	...	34	...	01	...	28	...	11
20	...	10	...	16	...	19	...	33
21	...	04	...	05	...	...	...	...
22	...	03	...	19	...	...	...	07
23	...	06	...	07	...	...	...	...
24	...	03	...	16	...	16	...	09
25	21
26
27	21
28	...	04	...	05	...	11
29	...	17	...	15	...	08	...	04
30	17
31	06	08

TOTAL.	1	10	2	08	1	63	2	27
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Note—March,	1922	3	00
" "	1921	3	55
" "	1920	0	87
" "	1919	2	33
" "	1918	0	97
" "	1917	1	41
" "	1916	1	81
" "	1915	1	06
" "	1914	...	...	...	1	70
" "	1913	...	...	...	...	67

Years—Total	1922	(at Lewisville)	...	81	16
" "	1921	...	...	78	79
" "	1920	...	...	59	07
" "	1919	...	...	60	19
" "	1918	...	...	70	58
" "	1917	...	...	73	64
" "	1916	...	...	69	41
" "	1915	...	...	70	57
" "	1914	...	...	54	86
" "	1913	...	...	68	81

PAMPHLET SERIES.

*The following can be had at the Office of the Society,
5 Chacon Street.*

- | | |
|--|---|
| 263 Cacao Cultivation Reports
on Shades | O. W. Barrett. |
| 266 Cacao Special Report on
General Culture | O. W. Barrett. |
| 279 The West Indies and Canada | West India Committee Cir-
cular |
| 280 Cacao Pests of Trinidad
Final Report | O. W. Barrett. |
| 324 Fungus Disease of Cacao | F. A. Stockdale. |
| 357 Remarks on Sugar Cane
Blight | O. W. Barrett. |
| 360 Cattle in Trinidad with
special references to
Breeding | Report by a Select Com-
mittee of the Society. |
| 390 The Witch-Broom Disease of
Cacao Translated | Mr. C. J. J. Van Hall. |
| 404 Sunlight and Fungi | Mr. C. J. J. Van Hall. |
| 405 Library of the Agricultural
Society 1st Jan. 1910 | Secretary. |
| 407 Nicaraguan Criollo Cacao | J. H. Hart. |
| 412 A Bacterial Disease of Ban-
anas and Plantation | Mr. J. Birch Rorer, M.A. |
| 422 Indentured Labour and Pre-
ventable Diseases | Dr. George H. Masson. |
| 426 Selection and the Cacao
Industry | Dr. A. Fredholm |
| 435 Krulloten Disease in Wild
Cacao | Mr. C. J. J. Van Hall. |
| 439 The Pollination of the
Cacao Flowers | Mr. H. A. Caracciolo |
| 440 A Collection of Fossils from
Couva | R. J. Lechmere Guppy. |
| 441 Results of Experiments with
the Frog-hopper Fungus | Dr. Lewis H. Gough. |
| 442 The Green Muscadine of
Frog-hoppers | Mr. J. Birch Rorer, M.A. |
| 443 Fowl Ticks | Report by Select Committee |
| 444 The Culture of Hevea | Dr. P. J. S. Cramer. |
| 445 Notes of some Cacao Pests | R. Lechmere Guppy. |
| 446 Soil Problems for Cacao
Planters | W. C. Jardine. |
| 465 Agricultural Protection Or-
dinance | |
| 467 Recent Addition to Insect
Fauna in the West Indies | Dr. A. Fredholm. |
| 477 Influence of Mosquitoes on
Birds Life | Dr. A. Fredholm. |
| 480 International Agricultural
Institute in Rome | T. H. Elliott. |
| 483 Sugar Cane Nurseries | Mr. J. J. A. Carlee |
| 485 The Planters, A.B.C. | By a Member. |
| 486 Change of Leaf in Cacao | Mr. W. C. Jardine. |

- 494 Remarks on the Cultivation
on Yams
- 499 Agricultural Education in
Trinidad
- 504 Agricultural Education
- 505 The King of the Woods
(*Momotus Bahamensis*)
- 510 Geology of Antigua and
other West Indian Islands
- 516 What are we going to do
about the Froghopper?
- 520 Further Note on the Caroni
Series at Savaneta
- 526 The Practice of Renewal of
Chupons
- 528 Rules and Regulation by
District Agr. Society
- 529 Lessons from the Drought
- 539 The Silk Industry
- 545 Agricultural Contracts
- 548 Ticks
- 562 Higher Agricultural Edu-
cation Part
- 564 Agricultural Development in
the West Indies
- 573 Tuberculosis
- 608 Agricultural Revolution by
the New Cult
- 609 Ankilostomiasis
- 610 Lime Cultivation Diseases
and Pests
- 611 An Experiment in Timber
Plant Tobago
- 618 Agricultural and Industrial
Exhibition
- 622 The Influence of War on
Tropical Agriculture
- 623 Tuberculosis
- 632 Round Tobago
- 633 Rhinoceros Beetles
- 634 Report on the Inoculation of
Locusts in *Cocobacillus*
Aeridiortum
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Cacao in Trinidad
- 655 Theobroma Cacao
- 657 Leguminous Plant
- 660 Causes of Emigration from
the Colony
- 662 Why Cacao Hybrids and not
varieties
- 666 Lime Industry
- 667 Manual and other Experi-
ment on Cacao
- 669 Inherent Characteristics of
Theobroma Cacao and a
summary on Cacao Experi-
ence
- Rev. H. Morton.
- Dr. A. Fredholm.
- Prof. H. E. Hendrickson.
- Mr. A. B. Carr.
- R. J. Lechmere Guppy.
- J. J. Carlee.
- R. J. Lechmere Guppy.
- Dr. A. Fredholm.
- Affiliated with the Agr.
Society of Trinidad and
Tobago.
- Dr. A. Fredholm.
- C. Glaudon.
- Report of Cocoa Committee.
- G. N. Walcott.
- Adopted at a meeting of the
Society.
- Prof. H. E. Hendrickson.
- Dr. Geo. Masson.
- Mr. H. Vincent.
- Col. J. R. Dodd.
- Mr. W. G. Freeman, B.Sc.
- B. S. Reid.
- Report of Joint Executive
Committee.
- Mr. W. G. Freeman, B.Sc.
- Dr. Geo. Masson.
- Report by Sec. submitted to
the Society.
- F. W. Ulrich.
- J. Birch Rorer.
- Mr. W. G. Freeman, B.Sc.
- F. E. Olivieri
- W. E. Broadway
- E. Gransauil.
- Mr. F. E. Olivieri.
- Dr. A. H. McShine.
- E. Radcliffe Clarke
- F. E. Olivieri.

- 676 Cacao disease in Ecuador
 683 Our Food Possibilities
 684 Plant Breeding and the Pollination of the Cacao Flower
 685 Moon's Influence on the earth and Plant
 693 The present position of the Citrus Industry in Trinidad & Tobago
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 704 Castor Oil Cultivation
 705 Remarks on a Drastic Treatment for Thrips in Grenada
 706 Co-Operation
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 717 Possible Trade in Yams with Canada
 737 Recent Experimental Work on Cacao
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 772 The Establishment of Fruit Industry in Trinidad and Tobago
 775 Disease of Cacao in Trinidad
 776 Notes on Poultry Raising
 777 The Treatment of Ankylostomiasis on the High Seas by the Intensive Method of Thymol Administration
 778 Cacao Thrips in San Thomé
 779 Fermentation of Cacao
 780 Plant Protection Ordinance and Its Use
 781 The Common Internal Parasites of Cattle
 782 Conversion by Top-Working of Old Mangos, Orange, and Avocados into good Trees.
 785 Kitchen Garden with Special Reference to Cabbage, Tomatoes and Beans.
 786 Insect Pests of Cabbage, Tomatoes and Beans.
 787 Some Common Diseases of Kitchen Garden Crops
 788 Notes on Cacao Experimental Work at River Estate
 791 Ticks and Their Control
- Prof. A. N. Martin
 A. B. Carr.
 F. E. Olivieri
 G. H. Nunez.
 W. E. Broadway
 F. D. Davies.
 J. Birch Rorer.
 Sir Norman Lamont.
 Atis. Agostini.
 Paul Ad Serre.
 F. W. Ulrich.
 F. D. Davies.
 R. A. Francis.
 H. Meaden.
 Rev. H. Morton.
 Mr. W. G. Freeman, B.Sc.
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 Geo. C. Payne, B.A., M.D.
 Mr. W. G. Freeman, B.Sc.
 Wm. Nowell.
 Mrs. F. E. Scott.
 Dr. Geo. Masson.
 F. W. Ulrich
 Jos. de Verteuil
 Frank Stell.
 Capt. H. Metivier.
 R. O. Williams.
 R. O. Williams.
 F. W. Ulrich.
 F. Stell.
 L. Scheult.
 Capt. H. V. Metivier, B.Sc.,
 M.R.V.S.

Proceedings of the Agricultural Society.

APRIL, 1923.

EDITOR'S NOTES AND CLIPPINGS.

Subscriptions.—Members are reminded that subscriptions to the Society for the year 1923 are due since 1st January and those Members who have not already paid are requested to do so without delay.

—(o)—

(*SOCIETY PAPER No. 793.*)

SOME NOTES ON THE AGRICULTURAL REQUIREMENTS OF COCONUTS.

BY MR. F. STELL, MYCOLOGIST OF THE DEPARTMENT
OF AGRICULTURE.

(*Read at a Meeting of the Society on 12th April, 1923.*)

It is one of the imperfections of human activity that enterprises often go wrong before they go right. This may be due to a variety of factors. General ignorance, the unthinking pursuit of something novel, commercial exploitation regardless of fundamental principles, and so on,

have often been responsible for failure of various kinds. And not the least of the factors of imperfection in Agriculture in the past has been the willing ear which prospective agriculturists have given to the specialist here and there who advocated exclusive attention to one aspect of the subject and gave it forth to the world as a kind of magic medicine which would rectify all ills and make the growing of a particular crop a matter of mathematical calculation. We are slowly learning that such views are fallacious. Experience is a valuable task-master if oft-times a bitter one.

All aspects of agriculture are important. And it would seem that a proper appreciation of the whole of the factors which operate in the growing of Coconuts, as of other crops, is what is most required nowadays. In the past very one-sided and unbalanced advice was frequently given; sometimes by a man who looked only to drainage, or soil analysis, or manuring, or spraying, and so forth. But to-day we know that estimates of the amounts of plant nutrients withdrawn from the soil by crops, supplies no scientific guide for soil treatment. We know, further, that neither the analysis of the crop nor of the soil affords the requisite information concerning the availability of plant foods in soils at different periods, and that therefore such data cannot in itself be used as an adequate guide in soil management and soil amelioration. What all this means is that in any discussion of relations of soils and plants, the physical factors such as light, temperature, humidity, total soil moisture, and soil aeration must be included in the discussion. In a word, all the factors involved in crop production require suitable adjustment if maximum results are to be obtained.

To determine, therefore, the requirements of the Coconut, we must know (1) as much as possible of the total environment, (2) we must know our crop-plant, the Coconut.

What is the Coconut palm? To primitive man it was simply a tree that supplied food, drink, shelter and

raiment. In modern times this palm has achieved a unique position. It is now one of the most important of tropical crops; in Trinidad and Tobago there are some 35,000 acres in this crop. This acreage represents about 1-60 of the world's total. For comparison I give—in round numbers—the following data:—

The Sugar Cane acreage in this Colony is 43,000 acres.

The Cocoa acreage in this Colony is 260,000 acres.

Taking the pre-war year 1913, the export value of Coconuts represented as Nuts, Copra and Oil was £97,135. During the last year i.e. 1922, the export value was £178,991 i.e. practically double the 1913 figures. One item in these figures calls for special notice. It is with respect to the output of Copra. In 1913, 1,151,539 lbs were exported at a value of £11,545. In 1922 the Copra output had increased to 9,428,813 lbs. and the export value was £94,541. So that in this 9 year period the production of copra has increased ninefold.

Now there is every probability that the Coconut and its by-products will prove profitable and have considerable pre-eminence in the years ahead. Therefore it behoves the prospective planter especially, to gain some familiarity with the Coconut palm so as to be in a position to give it a fair chance to produce good results.

Opinions differ as to the original home of the coconut. Some favour the old world origin; others again believe it to be a native of the American tropics. But whatever its origin it was introduced to many lands by man, and no doubt in many cases sea currents have transported the nuts from the shores of one country to another. It is now successfully grown commercially about 20 degrees north and south of the equator.

The Coconut palm is a halophyte, i.e. it can live and thrive in situations where its roots come in contact with salt water to an extent which would kill many other plants. It resists salt, not that it requires salt. As one

writer has graphically said regarding coconuts on sea beaches, they grow there because they can, not because they must.

But whether grown on shore or land—and both types are successfully demonstrated in this Colony—it behoves the person who wishes to determine the requirements of the palm to know something of the structure and functions of the several parts of the plant. Hence let us briefly consider the gross features.

The Root: As in all plants the root has a dual purpose. It takes up from the soil water and substances dissolved in water. And it also serves to anchor the plant. It will pay us to examine the roots of the coconut closely. We see that there is no tap root, nor has it a series of main roots. From the base of the tree there radiate on all sides long strand-like roots about one-third of an inch in diameter. The roots are strikingly uniform in diameter. Laterals grow out at intervals along the main strands; these are shorter and of less diameter. The length of the roots varies in different soils. In sandy soils they may be 20 or more feet long; in heavy soils they are much shorter. I have, however, seen them 14 feet in length in clay loams. The roots are very strong and elastic and admirably adapted for effectively anchoring the tree. On examination of one of these roots which average about 5,000 per tree, one sees that the exterior is a very rigid casing called the hypodermis. Inside this is what is known as the lamellar tissues; internal to these is the central strand or **stele** made up of fibrous woody tissues capable of withstanding a powerful strain.

Observation shows that the direction of growth of the main roots is roughly horizontal and near the surface; the laterals grow out at various angles. Roots rarely descend more than 40 inches; in some root-pruning experiments set up at St. Clair recently, the roots were confined to the upper 24 inches of soil. Each root tip is protected by a root cap which prevents injury to the growing point as it

penetrates the soil. It is to be noted that the coconut has no root hairs. As you probably know, a large number of plants are dependent on root hairs as the medium for absorbing water and solutes. In the coconut, however, the absorptive area is the young portion of the root just behind the root cap. Inspection of the roots reveals large numbers of small, white, somewhat conical shaped structures scattered at irregular intervals on the outer surface. These function as breathing organs. Such structures are common in species of palms where the roots are like so many cords and where the hypodermis is strongly developed. Air and water cannot pass through the hypodermis; hence these breathing organs function in a similar way to lenticels in those aerial parts of plants which are covered with corky bark.

As regards the stem, the chief characteristics are these: if a stem is cut transversely it will be seen to consist of a column of soft tissue usually termed "ground tissue" in which are visible dense circular spots. These are sections of the vascular bundles, and are really the food vessels of the palm. They traverse longitudinally the whole length of the stem and connect the roots with the leaves. The function of these vascular bundles is to convey food to and from the leaves. Nearer the periphery of the stem the vascular bundles are very close together and exceedingly numerous. Each vascular bundle has its own wood and bast. The wood is a conduit for the conveyance of water, and the bast transfers the food manufactured by the leaves to the growing regions. In addition, each vascular bundle has its own stout sheath which represents mechanical supporting tissue; in fact a considerable portion of the stem of a mature tree is composed of this mechanical tissue. The stem, besides the ground tissue and the vascular bundles, also contain fibres which are composed of very thick walled cells; these also function as supporting tissues.

The so-called "bark" of the tree is composed of a small amount of "ground tissue" and numerous fibres. The

"bark" varies in thickness in different trees. In well grown specimens it is about 5mm. thick; in trees grown in poor soils where the growth is slow and stunted it may be 15 mm. in thickness. The outermost layer of the stem consist of a very thin coating of sclerenchyma cells; these are well shown on a young palm stem. As the trees increase in age the stems lose their smooth appearance. The outer layer slowly disintegrates owing to the influence of sun and rain; also there is a slight contraction of the internal tissues. This result in the formation of countless numbers of very narrow longitudinal cracks on the surface of the "bark." These cracks are superficial in healthy trees.

There is no cambium in the Coconut; therefore there is no renewal of tissue and no increase in thickness of the stem. The coconut is a monocotyledon and possesses, apart from the reproductive organs, only one vegetative growing point and one leaf bud. And furthermore, what is of considerable importance is this: The coconut is unable to heal wounds by forming new tissues. No doubt in a later lecture by Mr. Nowell on diseases of coconuts you will hear this point discussed.

The leaves are of the pinnate type and form a rosette at the apex of the stem: leaflets are very numerous linear-lanceolate, and leathery. The leaf stalks, i.e. the petioles, are very stout and their bases sheath the stem and thus form a kind of reservoir where water and debris are apt to collect; I mention this because it is important in relation to the disease of the palm. Moreover, the leaves are more or less arranged in a mosaic manner so that they receive a maximum amount of light. The average length of a leaf in a mature tree is about 15 feet and a moderately good tree will have about 30 leaves.

Now the solutes in the soil are taken up by the roots, passed from cell to cell and conveyed through the vascular bundles of the stem to the mid-ribs of the leaves and thence to the vascular bundles in the leaflets. It is here

that the water is evaporated. This action is called transpiration, and it takes place mainly through the stomata (i.e. little mouths) which are exclusively located on the lower surface of the leaflets. Another structure which calls for some attention is the hinge on each leaflet. This is situated on each side of the mid-rib on the lower surface of the pinna. The term hinge is no misnomer; on the contrary it is literally correct. The significance of these structures is that when the cells of the leaflets are amply supplied with water, then the hinge-cells are swollen and the leaflets become expanded to the full extent. If the water supply is curtailed, the hinge cells lose their turgidity and so reduce the amount of transpiration.

Transpiration is markedly increased by several physical factors such as heat, atmospheric dryness and wind. The last factor, wind action, is regarded by many to be of only academic significance. No doubt in a large number of localities the influence of the wind is distinctly beneficial; particularly so where the roots are amply supplied with water at all times and where there is no prolonged dry season. But such conditions do not obtain in all places. On the contrary, there are localities where the trees suffer a distinct set-back in a drought period and this is largely accelerated by high winds. In such instances it is not uncommon to see groups of trees suffering severely from scale insects (*Aspidiotus destructor*). The provision of a shelter belt would be beneficial on sites of this type. But you will realize that any advice on this question can only be given after study on the spot.

It must not be forgotten that transpiration is only one function of the leaves. Primarily the leaves are the organs which manufacture the food of the plant. This food, starch and sugar, is absolutely dependent on sunlight for its formation and elaboration; and so also are the copra and oil which are formed later and which are now in great demand for various purposes. From the

standpoint, therefore, of the trees supplies of organic food it is imperative that the leaves receive a maximum amount of light. Shade which must not be confused with shelter, is detrimental to the production of the best results. Shade produced by too close planting results in the leaves having the transpiration curtailed and this reacts in diminished food supplies to the trees and consequent low yields.

The flowers of the coconut which collectively constitute the inflorescence are of the monoecious type, i.e., male and female are on the same tree and in this instance they are on the same flower spikes. The flower spikes are dense panicles. The spathes with their sheaths arise in succession in the leaf axils. Much experimental work remains to be done on the question of pollination and breeding, though it would seem that both self and cross pollination occurs. In some countries bees have been introduced to promote cross pollination and good results are claimed; but in such countries probably insect life is not abundant. At any rate there is no paucity of insect life in this Colony and one usually finds a varied array of insects at work.

Having outlined the main features of the structure and functions of the plant, we are in a better position to understand and appreciate its agricultural requirements. I do not propose to formulate a series of cast-iron rules for the guidances of the planter; but I do contend that better results would often accrue if more attention was given to the anatomy and functions of the tree to be grown.

There has been a prevalent notion that any kind of land is good enough for Coconuts, old sugar-cane land, derelict areas, semi-swamps and so on. Now there is not the slightest justification in expecting good results from indifferent seed-nuts planted in indifferent soils in an indifferent manner. Coconuts will tolerate a good deal of mis-handling and mis-management, but there are limits. Experience has taught coconut planters throughout the

tropics that this palm will not tolerate stagnant water in its root range. Moving water is very different; in fact the finest coconut groves in the world are located on or around mountain foot-hills of volcanic structure where the soil is porous and where there is constant seepage of water together with solutes. It is these which maintain the growth and vigour of the trees. The misconceptions which are still current about coconuts on sea beaches often offer a problem to which further study supplies an answer. It is quite indisputable that in many cases Coconuts on the foreshore are remarkably productive. We know that the soils in these situations are usually very porous and friable and many of them are notoriously non-nutritious. How comes it then that some of these sites are highly suitable for Coconuts? The explanation is not to be found in salt; it is rather that in most cases there is seepage water with contained solutes constantly moving in the soil from a back ground of high land.

It must be obvious to all that soil and situation vary considerably. Let us glance at a few types. There are coastal properties in Trinidad which are just about ideal for Coconuts. They belong to the class which might be called natural locations. Rising lands in the back ground supplies the seepage necessary for the roots and the water is in constant movement. Probably the growing of coconuts on the foreshore has led people to think that such soils are sufficiently nutritious and this may be responsible to some extent for the idea that this crop will flourish in any situation and in any kind of soil and with as little attention as it usually gets on the foreshore. We know that such is not the case. However, when the best class of lands have been commandeered, lands which are easy to work and economical, there remain several other types which require much more money and labour to produce successful results. A favourite practice in recent years has been the planting of coconuts on Sugar-cane areas. Some of these ventures have been highly successful and others have not. It may be laid down as

an axiom that success is in proportion to the application of sound agricultural principles. Where drainage, weeding, mulching, ploughing, and manuring have had continuous attention the trees have grown vigorously and give promise to excellent results. On the other hand, there are coconuts on lands previously in canes where the drainage is altogether inadequate; where no cultivation or manuring is practiced; and where a plough has never been on the land. With such a state of affairs the trees appear distinctly unpromising and to turn them into a sound proposition will involve considerable outlay in money and labour. A word may be added here respecting the methods adopted locally in the conversion of cane lands into coconuts. The best method, which is practiced by some planters, is to establish a pure stand of coconuts from the beginning and I venture to think that this method if properly pursued will be the most economical and successful in the long run. Success in coconut growing largely depends on the proper care of the young plants in all except the limited natural locations; and I am convinced that planters will give more attention to their groves when they realize the possibilities of sound methods. A very common practice is to grow canes along with the coconuts for a few years. This system is not altogether good, nor is it altogether bad. It is good in that the land is periodically cultivated and mulched, and it is bad in that the coconut plants are robbed, to some extent, of light and food. Nevertheless, the system of a mixed cultivation of coconuts and sugar cane is preferable to the one which one sees in some places where coconuts are planted and nothing more is done. In such instances a luxuriant growth of weeds appears between the plants and oftentimes covers the plant themselves.

Though a good deal remains to be done on the breeding aspect of coconuts, still the practical planter has a key to good selection by utilizing only heavy bearing trees; such trees to be growing under average conditions. There is no doubt whatever that there is great variability

in bearing capacity, and planters should carefully note the best bearers. The thoroughly up-to-date planter will never select nuts from a pile. Large nuts so selected are no indication that the resulting trees will be good bearers. And now that the market demands have changed during recent years from whole nuts to copra as I indicated earlier in this paper, the grower should modify his practice to meet the new demands. This calls for further selection. Nuts vary in copra content just as trees vary in bearing capacity. Not only that, but for the copra market, the time of harvesting the nuts is important. For copra production the ideal method would be to use only fallen nuts. This would entail keeping the ground fairly well weeded so that nuts would not be lost; and I am told that greater supervision of groves would be necessary to prevent pilfering. But I am only dealing with the agricultural aspects; the planter has his own special problems. Anyway, for the copra market, only mature nuts should be picked to secure maximum yields.

No rigid rules can be compounded for the lay-out of a coconut property. Soil and situation vary and create local problems. The same applies to methods of planting and handling the land subsequently. But in good soils the trees should certainly not be less than 30 feet apart; this follows from what was said previously in discussing the general habit of the tree. It is a great fallacy to assume that the more trees there are on a given area of land the greater will be the return. The rubber planters in the East are realizing this to-day. It has recently been found that by thinning out to the extent of 50% of the rubber trees that greater yields of latex are resulting. So that purely on the side of production and leaving out of account the disease aspect of crops, spacing is highly important. Of course, it is realized that in the past valuations of estates have been based on the number of trees, but one cannot hope for a continuance of this practice. The only sound basis of valuation is one based on crop, or a series of crops.

(Given then an area of land with a good friable soil, with reasonable attention to seed selection, lay-out, drainage, cultivation and general sanitation, one can hope to develop a successful grove. And this leads to the question of manuring. There are soils carrying coconuts which are unsuitable to the crop. The trees are stunted after 20 years growth and the yields are negligible. Such areas are best abandoned or put to some other crop. But where a property is promising, and giving steady yields and is being exploited annually, then efforts should be made to maintain and improve fertility by the application of manures. Experimental work with coconuts is somewhat complicated and long-dated, but there is no good reason on the face of things for expecting anything but good to accrue by a judicious use of cultivation and the addition of manures.

To sum up: (a) Soils and seed-nuts should be carefully selected; (b) close planting is incompatible with good crops; (c) ring-weeding, especially young plants, hoeing, and ploughing of mature groves are useful; (d) for copra production thoroughly ripe nuts should be used; (e) manures can be profitably applied where indications of their utility are shown.

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GENERAL MEETING.

Minutes of the General Meeting of 12th April, 1923.

Present :—W. S. E. Barnardo, President, in the Chair, Hon'ble A. B. Carr, Vice-President, Sir F. Watts, K.C.M.G. Principal of Agricultural College, W. G. Freeman, Director of Agriculture, Wm. Nowell, Assistant Director of Agriculture, J. L. Wilson Goode, Trade Commissioner, F. Stell, Mycologist, F. W. Urich, Entomologist, R. O. Williams, Rev. H. H. Morton, Messrs. J. Lickfold, J. Black, L. Cipriani, Capt. A. A. Cipriani, J. Mungal, W. C. Jardine, Lieut.-Col. Collens. F. Le Blanc, E. A. Robinson, Wm. Dickson, A. A. Sobrian, G. C. Wyatt, Captain Gooden-Chisholm, A. J. Hamlyn, H. Gajardarsingh,

G. Grant, Geo. de Nobriga, M. Martinez, R. S. Cunliffe, E. Radcliffe Clarke, C. Fleming, S. Medford, A. G. Bailey, and L. de Verteuil, Secretary.

There were also present Professor F. S. Dash with the Students of the Agricultural College.

Confirmation of Minutes :—The Minutes of the Meeting of 8th March and the Special combined Meeting of the Chamber of Commerce, Board of Agriculture and Agricultural Society were confirmed.

Correspondence —A letter from Mr. Fred Herrera was read. It was in connection with an offer of a Special prize of a 20 guineas Canteen by Messrs. Day, Son and Hewitt Ltd. for the best conditioned milch cow in the Island, to be competed for at a Central Show. The Canteen was exhibited and shown around to Members and on the suggestion of the Chairman, the subject matter of the letter was referred to the Committee of Management.

Another letter was received from the Secretary of the West India Committee acknowledging receipt of the following cable from the Agricultural Society:

“ Agricultural Society strongly support representation from Chambers of Commerce urging Preference and ask that special consideration be given Cacao in view of vital interest to Colony.”

The Secretary replied that unfortunately the cable arrived too late to enable him to hand it to the Duke of Devonshire in person, as the Deputation from the West India Committee waited on His Grace on March 1st. He had, however, forwarded the message to the Colonial Office with a request that it may be submitted to His Grace and attached to the letter endorsing the representations made by the Deputation.

Increase of Land Tax on Crown lands held under Exploration License by Oil Companies :—This was a motion in the name of Mr. C. P. Rojas. At his request it was previously withdrawn.

Removal of Extra War Tax on Passenger Fares and Freight Rates :—This was another motion in the name of Mr. C. P. Rojas, who, being ill, could not attend the Meeting. The Chairman said that he had seen the General Manager of the Railways who had assured him that in the new tariff which will come into operation shortly, the war tax had been taken off the passenger and the freight rates and a fixed rate was going to apply.

Agricultural Requirements of Coconuts :—Mr. H. Stell, Mycologist of the Department of Agriculture read an excellent paper on the above subject which brought on an interesting debate, on the relationship of the honey bee with the fertilization of the Coconut flowers. Messrs. F. W. Ulrich, Entomologist, A. C. Bailey, Economic Botanist and Wm. Nowell were of opinion that the honey bee had little to do with the Fertilization of Coconut trees. The matter was considered to be of sufficient importance, to be more thoroughly investigated.

Mr. Stell's paper will be published "in extenso" in the "Proceedings of the Society" of the month of April.

Death of Cattle in Queen's Park Savannah :—Captain A. A. Cipriani moved the suspension of the standing orders, to enable him to bring forward a resolution on the subject. Seconded by Mr. Leon Cipriani and carried.

Captain Cipriani said that the poisoning of seven cows in the Savannah was of great interest to Owners and Breeders of Cattle and he regarded the investigations carried out by the Veterinary Surgeon and the report of the Government Analyst as being far from reassuring and they had not got nearer to the root of the evil. While it was possible and even probable that common salt in large doses might prove fatal to Cattle, it was not reasonable to accept the theory that cattle of their own free will would take such a quantity of salt which would cause them to be poisoned. He, personally, would suggest that some herb poison or some insecticide used on cricket patches, or for spray-

ing purposes, might be the cause and he begged to move: "That the Society recommend that the Department of Agriculture should carry out further investigations with a view of relieving the anxiety of Owners and Breeders of Cattle and to get to the root of the evil." Seconded by Mr. C Fleming. Messrs. E. A. Robinson, Radcliffe Clarke, and Sobrian supported the resolution and after Mr. W. G. Freeman, Director of Agriculture had explained all the precautions that had been taken and detailed the investigations that his Department had carried out, Captain Cipriani suggested that for the present at least, the Department should not allow the cows to return to the Queen's Park Savannah. Mr. Freeman said that the cows were back to which Captain Cipriani answered, that the Director must accept the responsibility.

Rev. H. Morton did not think better could be done—the Analyst having found salt in sufficient quantity to cause death, the matter should stop there.

Captain Cipriani's motion was put to the vote and carried.

Before closing the meeting, the Chairman mentioned that he had seen the General Manager of the Government Railway on the question of the new regulation which demanded the payment in advance of freight on consignments of Cacao less than six bags. He pointed out to him the hardship that would result and Mr. Powter agreed to withdraw the order. Cacao in quantity would therefore be accepted as before but the freight would have to be paid before delivery.

At 3.45 p.m. the meeting terminated.

L. DE VERTEUIL,

Secretary.

Confirmed.

W. S. E. BARNARDO,

President.

COMMITTEE MEETING.

At a Meeting of the Committee of Management held in the Council Chamber on Thursday, 8th March, at 1 p.m.

Present :—W. S. E. Barnardo, Chairman, Messrs. W. C. Jardine, G. C. Wyatt, J. Lickfold, C. Cleaver, S. Medford, A. A. Sobrian. Revd. H. H. Morton, Captain Gooden-Chisholm, Hon'ble A. B. Carr, and L. De Verteuil, Secretary.

Affiliation of Goat Society :—The application of Dr. L. Shannon, V.S., for leave to affiliate the Trinidad Goat Society to the Agricultural Society was considered. After consulting Ordinance No. 1 of 1919, relating to the Agricultural Society and the Rules and Regulations, it was found, that in virtue of the powers vested in the Committee, by Section 10 of the Ordinance, whereby they have power to make such rules and regulations as may be deemed necessary for the management of the Society, including the conditions of Membership of the Society, the Committee decided: “ That all Societies formed to encourage or improve any kind of Stock in the Colony may be affiliated to the Society on payment of an annual subscription fee of \$2.40

In consequence of this decision, the Trinidad Goat Society was affiliated to the Agricultural Society and the Secretary was instructed to inform Dr. L. Shannon accordingly.

Galvanized Sheets :—The Secretary reported that he had taken the opinions of some merchants as to the value of the 21 galvanized Sheets, the Secretary of the Queen's Park Cricket Club had offered to purchase. 72 cents per sheet had been offered, but the Committee decided that they would not accept less than 80 cents per sheet after making an allowance of 20% on the cost. The Secretary was instructed to close on that basis.

Insurance of Galvanized Sheets, iron uprights, and ribs and Bird Cages stored under the Princes Buildings:—The Committee decided to reduce the insured value from

£700 to £500—the annual premium of which, would be \$15, payable to the Commercial Union Assurance Company Ltd. as from the 1st March, 1923.

Colour of Cover of Proceedings :—It was considered advisable to have all Proceedings of the same year covered with the paper of the same colour, so as to distinguish one year from another.

Correspondence :—Letters from the Secretary of the Seamen's Hospital, Greenwich, from the Secretary of the West Indian Club, London, and from the Friendly Society of Sangre Grande, all asking for subscriptions, were not entertained and the Secretary was instructed to answer accordingly.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

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REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

SAVANA GRANDE.

The April meeting of the above Society took the form of a Field Demonstration on "Cacao Pruning" at "El Salvador", Capt. Chisholm's Estate, on Tuesday 3rd instant the demonstration being conducted by Mr. T. Boodansingh, Agricultural Advisor. In spite of heavy showers of rain which fell continuously throughout the afternoon the members wended their way through the Cacao fields where they were treated to a practical demonstration on the above mentioned subject. A very profitable discussion was engaged in. Leaving the field

the members adjourned to the New Grant E.C. School (kindly lent by Revd. Doggett for the occasion) where the business part of the meeting was conducted.

Present were: Mr. David Mahabir, Vice-President in the Chair), Messrs. G. C. Wyatt, G. Nunez, J. H. Dube, C. P. Rojas, R. C. Gooden Chisholm, K. Simpson, Sam Ryan, Stephen Rees, T. Boodansingh (Agricultural Advisor) C. Amos, Geo. Rock, Ifil, G. A. Jones, Hon. Secretary, and M. B. Collymore, Hon. Asst. Secretary.

The minutes of the January meeting were read and confirmed. The February meeting took the form of a visit to Golconda Estate, so there were no minutes. The March meeting was an extraordinary one, the occasion of His Excellency's visit to distribute the prizes in connection with the Vegetable Competition. A press report of same being recorded in the Minutes was taken as read.

The Secretary called the attention of the meeting to the kind offer of Mr. W. G. Freeman to give to the Society for service at low rates a ram of very good breed on condition that it be properly stalled and fed. It was unanimously decided that it be entrusted to Mr. E. Fabien, manager of the Cedar Hill Estate, and that the fee of sixty cents for service be kept by him.

In reply to a letter from the Secretary of the Parent Society re diploma to Mr. Ramcoowarsingh, it was unanimously agreed that a diploma be rewarded him for his excellent results in the 1922 Vegetable Competition, his award being 100 per cent. of marks. The diploma awarded last September was for the 1921 competition the presentation of which had been very long but unavoidably delayed. The meeting requested that the diploma for this year be presented by the Parent Society at one of its meetings as was done last year.

The reading the reports of Vegetable and Rice Competitions, delayed through not having a regular meeting since January, was postponed for the next meeting. The meeting then terminated.

NAPARIMA.

DEMONSTRATION AND LECTURES ON COCOA
BUDDING.

The members of the Naparima District Agricultural Society journeyed to Los Bajos on Saturday afternoon last to witness an interesting demonstration on cocoa budding on Mr. H. R. McLean's Estate and listen to lectures on the subject by Messrs. W. G. Freeman, Director of Agriculture and R. O. Williams, Superintendent of the Botanic Gardens. Among those present were Messrs. J. C. Augustus, Chairman, H. Stent, A. A. Sobrian, R. M. Scott, A. H. Dasent, H. Dee, E. F. Headley, J. Gittens, D. Chadee, H. Gobin, A. Hosein, Geo. Bobb, J. H. Maurice, A. Bobb, E. Douglin, P. Ferdinand, L. P. Salomon, Geo. Mahabir, J. Kangaloo, B. Chapman, F. Manghan, J. Rochard, A. Ogeerally with Mr. E. A. Lakhan, Hon. Secretary and H. Gordon, Assistant Secretary.

Messrs. W. G. Freeman, Director of Agriculture, R. O. Williams, Superintendent of the Botanic Gardens, and L. Seheult, Manager of River Estate and Father Romano were also in attendance.

The members were taken over Mr. McLean's beautifully kept Estate which covers an area of 172 acres and shown budded cocoa trees of varying ages. The majority were four years old and fruiting heavily as compared with seedling trees of the same age many of which had not yet started to bear. A feature of the budded trees was that they started to branch almost from the soil. Mr. McLean explained that the yield from the budded trees was very much greater than that of the seedling and it was a question of every tree bearing which was not always the case with the seedling.

The estate is provided with a beautifully equipped and spacious cocoa house of Mr. McLean's own design

and a fine sweating house with an underground cistern which receives the drippings from which vinegar is made.

After refreshment was served the regular monthly meeting of the Society was held.

THE LECTURES.

Mr. Freeman then delivered the following lecture:

THE BUDDING OF CACAO.

The Naparima Agricultural Society is meeting to-day on an estate possessing close upon 5,000 budded cocoa trees, a number which to the best of our knowledge is not to be found on any other private estate in the world. Ten years ago there were only two budded cacao trees in the colony and these had been obtained with such difficulty that the budding of cacao could not be looked upon as of practical importance. It is obvious then that in ten years considerable advance has been made and budded cacao from being a horticultural curiosity in the colony is taking a place in estate practice.

For many years attention has been given in various cacao growing countries to the possibility of propagating cacao by grafting or by budding. Fruit trees in temperate countries are largely propagated in these ways, thereby securing plants which are true to type, come earlier into bearing, and frequently are hardier than seedlings on their own roots. In the tropics the mango is also propagated by grafting and the orange and grape fruit by budding, owing to the great variation found in the fruits of their seedlings. In the case of cocoa the principal object aimed at by earlier workers on grafting and budding was uniformity in type.

In this colony pioneer work was done by Mr. J. H. Hart when Superintendent of the Royal Botanic Gardens, and he exhibited grafted cocoa plants at the Agricultural Society in 1898. The method was not taken up on a large scale and when I took charge of the Botanic Gardens

in 1911 there were only two specimens of grafted cocoa there and no large number elsewhere in the colony. More work was however done in Dominica, by Mr. J. Jones who from 1906 onward planted up plots of grafted cacao in the Botanic Station of that island.

Success in budding cacao was obtained in Jamaica, Java, and Hayti, but has not so far as I am aware made much practical use of. More recently budding has been actively taken up in Surinam.

In 1909 at the Tobago Botanic Station then under the charge of Mr. W. E. Broadway two cacao plants were successfully budded. There were however so many failures that the method was not looked on as within the possibilities of practice on an estate scale.

In 1913 we were becoming interested here in the fact that amongst cacao trees there were some naturally high bearers and others naturally poor bearers. It was possible that vegetative propagation might be a means of obtaining progeny similar to their parents. Grafting (inarching) of cacao is a troublesome and expensive process and therefore I felt that a determined effort should be made to ascertain whether budding could not be made a practical proposition for the planter, and just before going on leave I asked Mr. J. C. Augustus who as Chairman of your Society is with us to-day—and who was the Curator of the Botanic Gardens to give the method a thorough trial. Whilst I was away he and Mr. J. de Verteuil did so and I returned to find that out of 40 attempts 16 had been successful. Forty per cent. was sufficient encouragement for a start. I may mention here that in 1915 to ascertain whether one season was preferable to another. 100 to 200 plants were budded each month at the Gardens. The successes ranged from 36 to 75 per cent.; age of the stock rather than the weather being apparently the chief factor. As already stated one important reason for attempting in 1913 to make a success of budding on a practical scale, was that work at River Estate initiated by Professor Carmody and

Mr. J. de Verteuil had shown that cacao trees varied greatly in their yield, that there were naturally good bearers and naturally bad bearers. This gave a new possibility to the usefulness of budding. We knew from work with other plants that budded trees come true to type, and could be practically certain that budded cacao trees would bear pods of exactly the same external character and containing beans of the same type, as those of the tree from which the buds were taken. Would the budded plants also be heavy bearers if taken from heavy bearing trees? That is a point of far importance to most planters than uniformity in type of cacao.

Since our work was begun results have been published by workers on citrus fruits in the U.S.A. which are very encouraging. It has been found that orange trees for example are naturally good and bad bearers, and also that a poor tree can be converted into a good bearer by cutting it back and top working (budding) it with shoots from a good bearing tree, i.e., that good bearing is an hereditary character and not entirely dependent on soils and other external factors.)

A large scale of experiment to ascertain the bearing capacity of budded plants in comparison with seedlings from heavy bearers is in progress at River Estate. Many of you have seen this and I need not go into detail to-day. When laying out this experiment the hope was expressed that planters in the colony would also give budded plants a fair trial so that results would be more quickly available, obtained under conditions differing from those at River. Mr. McLean made a small beginning and was sufficiently well impressed with the results to put in larger numbers of budded cacao each year. You have seen the plants to-day and have had an opportunity of forming an opinion for yourselves. The scale of the experiment is important because whilst it is easy to care for a few trees, it is not so when you are dealing with some thousands. They then cannot get much more attention than should be given to ordinary plants on any well worked estate.

A few other planters have also co-operated with the Department in making trials. At Sir Norman Lamont's estate, Palmiste, there are some 1,000 trees under the care of Mr. J. C. Augustus. Captain Gooden-Chisholm has also budded plants.

The preparation of these budded plants has mostly been under the charge of Mr. R. O. Williams, Superintendent of the Gardens, who has throughout taken the keenest interest in the development of the cacao industry of the colony.

Further trials would be welcome and most valuable. Dr. Stahel, Director of Agriculture in Surinam, who was quite recently in Trinidad and paid a visit to this estate, has given special attention to cacao budding, told me that they have some 12,000 budded cacaos in Surinam and that although there are not a very large number on any one estate most planters have trial plots of 300 to 500 trees. So confident is Dr. Stahel of the future of budded cacao that he has made arrangements to produce 100,000 such plants during the next three years.

The Department is always ready to give assistance. We will supply budded plants, if reasonable notice in advance is given, or arrange for the budding being done on estates, in field nurseries or as plants grown at stake. On any estate which takes up budded cacao, it is desirable to have an employee trained to the work. The knowledge is easily acquired and the Department will train people and has already done so in a few cases.

As I have said before on other occasions the Department is not urging planters to take up budded cacao on a large scale but we do believe, that it is worthy of a thorough trial. We thus greatly appreciate the very valuable work which Mr. McLean is doing here, and earnestly trust that it will prove of value not only to himself but to many others.

BUDDING OF CACAO ON ESTATES.

Mr. R. O. Williams, Superintendent Royal Botanic Gardens said: The principal method of propagating the

cacao tree is by seeds and in the early days of the industry, it is doubtful whether any consideration was given to their proper selection. Generally speaking the value of selection is now understood and on some estates great care is taken regarding the selection and care of the trees needed for seed purposes. In the West Indies and in other cacao growing countries cacao plants have been raised and distributed for many years from the Government Botanic Stations where they are raised from seeds selected from good stock.

Although it is advisable to take the greatest care in the selection of seeds it is a well known fact that they do not come true to type. Proof of this is to be found on the River Estate, Trinidad, where rows were planted with seeds from the same trees, distinct variation in type has already been noticed in these.

At the present time it is generally recognized by experimenters in this line of work, that whilst cacao plantations can be improved by a rigid selection of seeds other methods of propagation are necessary if a uniform type is to be grown, and uniformity of crop obtained.

Records of individual yields of cacao trees have now been kept at River estate for the last ten years and these have shown generally that 22 per cent. of the trees yield less than 12 pods, 22 per cent. between 15 and 25 pods, 31 per cent. between 25 and 50, 15 per cent. between 50 and 75, 16 per cent. between 76 and 100 and 4.8 per cent. over 100 pods.

The records of the yields also show that the trees are consistent in their bearing, that is to say, full grown healthy trees which have been raised from seeds may be classified in poor, medium and heavy bearers and even though the influence of manure and good cultivation will tend to increase the yields of all, they will only be increase pro ratio.

It will be noticed from the above figures that a large percentage of trees may be classed as unremunerative and if economically practical it would be of undoubted advantage to the planter to eliminate them and

replace them for a better and assured strain. It is doubtful whether up to the present any action has been taken in general estate practice towards the replacement of such trees by seedling and even if this were done there would still be the same uncertainty as to their yields.

VEGETABLE PROPAGATION.

For some years past attempts have been made to solve this problem by experimenting with vegetative methods of propagation. Grafting by approach was first tried but for many reasons that method has now been dropped for the more practical method of budding. This work has been chiefly confined to Government Botanic and Experiment Stations. Mr. J. Jones, Curator of the Botanic Gardens, Dominica, being the chief pioneer in the work. In later years the matter was taken up by the Trinidad Department of Agriculture and for several years past a sustained series of experiments on an estate scale have been carried at the Government River Estate under the control of that Department.

This led to private initiation and the establishment of plots on estates. Your President, Mr. J. C. Augustus has a plot of I believe 1,000 trees on the estate of which he is in charge—Palmiste Estate—and on the estate of Mr. H. R. McLean which you have visited to-day 4,800 budded trees have been planted out. Dr. Stahel, Director of Agriculture in Surinam also a pioneer of budded cacao in that country visited this estate two weeks ago and congratulated Mr. McLean in having the largest number of budded cacao trees on any one property in the world. We should also today I think add our congratulations to Mr. McLean for the example given and experience already gained in the planting of budded cacao on his estate and the ready facilities which he has always given for persons interested to visit his estate. I believe that now Mr. McLean sees his budded trees beginning to bear fruit his only regret is that his whole estate is not in budded cacao.

The history of budded cacao on this estate is briefly as follows:

Mr. McLean was first persuaded to inquire into the advisability of planting budded cacao by Mr. Wharton and he afterwards came to see me at St. Clair Experimental Station in 1918 when the subject was discussed and arrangements made for a supply of plants. In December 1918, 400 were sent and these are the oldest which you see fruiting to-day. Some trees have been put in each year since and you will have noticed today the plots of varying ages. In 1921-22 the earliest planted trees begun to show fruit but these were all removed before they had time to mature and it was not till the end of 1922 that Mr. McLean began to allow them to carry fruit to maturity. As you will have noticed to-day results from the first crop are very promising.

When Mr. Freeman and I visited the plots in February it was possible on very many of the trees to count between thirty and forty pods and that after two pickings had been made.

In 1922 Mr. McLean planted a further 2,900 plants of budded cacao raised at St. Clair Experiment Station from trees bearing nothing less than an average of 100 pods per annum over a number of years.

Some of those planted late last year have not sufficient temporary shade, but it is hoped that with the showers being experienced at present and by the system of mulching adopted these will not suffer unduly till the commencement of the rainy season.

On several occasions we have compared the seedling plots of the same age growing next to the budded and both as regards vigour and crop the evidence has always been in favour of the budded.

Since the plot has commenced to bear there has been an increased interest amongst planters as to the possibilities of budded cacao and consequently a much

greater demand for plants. In this connection there are one or two elementary points which it is necessary to repeat.

(1.) That the actual operation of budding is useless unless great care has been taken in the proper selection of trees from which the budwood is taken and

(2.) That budded trees cannot be expected to thrive where seedlings will not or may be expected to pay unless proper cultivation be given them. If these trees are to produce heavy crops continually they must be properly cared, and the advantage is that you will know what to expect of your trees whereas with seedlings however, well you care and manure them quite a large proportion of them are always poor bearers.

A comparison may be drawn between a cow giving 24 bottles of milk a day and one giving only six, both cows consuming exactly similar food and costing the same to keep.

BUDDING WORK.

So far the majority of budded cacao trees being grown in the colony have been raised at St. Clair Experiment Station, on stocks raised from seeds sent from River Estate and from budwood taken from the best trees selected on account of big yields, large beans, number of beans in the pod, etc. The method found most successful is to grow on the stocks till they are $\frac{3}{8}$ to half inch in diameter and then select branches of about the same age and ripeness from the heavy bearing trees on which are to be found dormant plump buds. These buds are taken out nearly with the bark in the shape of a rectangular patch, the length of the patch may be $\frac{3}{4}$ inch and the breadth half inch. This may vary according to the size of the stock. A similar patch of bark is taken out of the seedling to be used as a stock and the patch taken from the heavy bearing tree inserted in its place. This is then bound around with adhesive tape in such a manner as to leave the actual bud exposed. In two weeks the tape is taken off when it can be seen

if the bud has made a union. If this the case the point should be pinched out of the stock and the plant set aside to allow the inserted bud to develop. When several inches of good strong growth has been made the stock should be cut back to immediately above the point of union, the cut being treated with crude oil. In a few weeks the plant will then be ready for planting in the field. Stocks on which the bud has proved unsuccessful may be rebudded but it is advisable to insert the bud below the seat of the previous trial.

The method I have described is the one adopted at St. Clair because transport of the plants has to be arranged for after they are ready to leave the nursery, but in estate practice it is not necessary to raise the plants in bamboo plots, and for estate work it is recommended to make nursery beds as near as possible to the place where it is intended to establish them permanently and then bud on to these from specially selected trees.

This method has many decided advantages as it allows selection of budwood from heavy bearing good quality trees selected on the estate and therefore known to the owner or manager as specially suited to that environment, it provides a much quicker supply at cheaper expense, and avoids damage in transit which is sometimes very considerable.

Trained men to do the budding work may be obtained from the St. Clair Experiment Station or you may send your own men to receive instructions at St. Clair, where possible we prefer the latter as not only does it provide for a wider dissemination of knowledge but it enables the estate to become self reliant.

In conclusion I would like to point out that the budding of cacao should not be restricted to new cultivation but the marking of poor bearing trees should also be undertaken with a view to cutting them out and replacing with budded trees. The marking of these trees would need to be undertaken by a responsible man and I

would not consider it advisable to cut out all poor bearing trees in a field at once, as if the percentage of such trees was high, the remaining ones would be liable to suffer for a time from wind and exposure. As a practical working measure it would seem best to decide first on replacing all trees bearing less than twelve pods. An appropriate method of ascertaining these trees could be carried out by recording the yield of all trees bearing less than twelve pods by marking the actual yields on the trunk by means of a tarred stick. If this were done at each picking a record of the bearing capacity of the trees would be available without much trouble. It is not necessary to mark all the trees on a plot at first; it would be sufficient to mark those giving less than 12 pods at the first gathering of the season. If these trees were tested in the same way for two or three seasons the point could soon be ascertained as to whether they consistently yielded less than twelve pods per annum and thus needed to be replaced by better bearers. After these had been replaced the next group of trees, say, those bearing 12 to 25 pods, might be taken in the same way and so on till the proprietor was satisfied that he was obtaining the maximum yields from his trees.

The successful future of the cacao industry in Trinidad may largely depend on the propagation from high bearing trees cultivated on an intensive scale resulting in higher yields and profits per acre and it is hoped that the plot you have visited to-day is a fore-runner of the cultivation of cacao by this method on a large scale in Trinidad.

WINDWARD (ROXBOROUGH,) TOBAGO.

Minutes of a meeting of the above Society held on the 10th April, 1923

Members present.—There were present J. B. Murray, Esq., J.P., Deputy Chairman, presiding; Messrs. R. P. Harries, J.P., W. Rodriguez, Jas. Clarke, F. D.

Davies, H. Fraser, H. Oneille, A. Davidson, N. Holder, E. Connor, R. Douglas, C. Jack, R. Jack, and F. J. B. Henry.

Remarks by Deputy Chairman.—Mr. Murray in opening the meeting said he would like to record a vote of sympathy in favour of the Chairman, Rev. E. Pilgrim, who was absent due to illness, and away in Barbados for the benefit of his health. The meeting expressed its sympathy with Rev. Pilgrim by standing.

Minutes.—The Minutes of the last meeting were read. Their confirmation was moved by Mr. H. Fraser, seconded by Mr. N. Holder and confirmed unanimously.

Correspondence.—Letters from the Secretary of the Parent Society 19th and 31st ultimo were read. Two copies of "Fruit Cultivation" were received. These, however, proved insufficient for the entire Society; and members expressed their desire to have their own copies, which they intend purchasing.

After a brief discussion in which Messrs. Rodriguez and Fraser took the lead, the meeting decided to ask the Fruit Department to supply all informations necessary on packing, selling, etc., of fruits.

A letter from Mr. T. L. M. Orde of Louis D'Or Estate, was also read, expressing Mr. Orde's willingness to demonstrate to this Society at Louis D'Or, anything of agricultural interests which they like on the Estate. After brief discussion it was agreed to visit Louis D'Or for the demonstration on Saturday 14th instant at 8 a.m.

Election.—The following gentlemen were elected to membership by unanimous votes:—Messrs. N. Mc Coney, A. Wilson, M. Fortier.

Pruning.—A very interesting and instructive paper on pruning was delivered by Mr. J. B. Murray (Kendal) Deputy Chairman of the Society. After the paper, Mr. Davies, the advisor, gave a brief review of the most important points raised in the paper.

Many questions were asked and were answered by the advisor.

A vote of thanks was expressed to Mr. Murray for his valuable paper to the Society, proposed by H. Fraser, seconded by E. Connor and carried unanimously.

The meeting expressed its desire to have the paper printed in the "Proceedings" for further distribution among members.

Mr. Murray accepted the thanks.

Roll call and National Anthem brought a very interesting meeting to a close.

The following was the lecture:—

PRUNING COCOA.

Gentlemen,

I have been asked to address you to-day on some subject of interest and have chosen as my subject : Pruning Cocoa, considering that most of us are specially interested in this particular work at this season of the year.

DERIVATION.

The word 'prune' is derived from the Scotch : 'preen' or 'prin' meaning a pin or knitting needle, from the idea of arranging nicely with a pointed implement.

OBJECTS OF PRUNING.

The objects of pruning are manifold and I will try to deal with a few of the main aspects of the subject.

1. It is of primary importance to control and improve the growth of cocoa trees. If left alone they will run to wood and develop into enormous unshapely trees that will have the appearance of forest trees. They will not only run to a height that will make them unworkable for picking, but will become clustered inside with branches that will prevent the necessary amount of light and air from penetrating, thus reducing the productiveness of the trees.

2. The next thing we have to consider is the preservation of a good round symmetrical shape for the trees. The chief objective in every cocoa field is to obtain the maximum yield from any given area. If the trees are allowed to extend their branches so that those of neighbouring trees interfere with each other and become interlocked, the yield will decrease in consequence of the partial stoppage of light and air.

3. Where cocoa cultivation is on hill sides it is essential that a large proportion of the primary and secondary branches that have a tendency to grow 'down hill' should be removed, otherwise when heavy rains saturate the ground in the Wet Season, the weight of the lower branches will cause many of the trees to capsize down the hill.

4. By pruning trees at regular intervals, parasites such as Misseltoe, etc.; pines, fungi and all diseases will be kept in check and the trees will always be in a healthy, vigorous condition. It is essential, of course, that diseases should be treated, as soon as discovered, at any time of the year, but I mention these in this connection because it is practically certain that any that may have escaped the notice of the casual observer, will be discovered at the time of pruning.

DIFFERENT TYPES OF PRUNING.

It is obvious that trees growing under varying conditions of soil, elevation and land contour, will require correspondingly different treatment in pruning. I have already observed that trees growing on flat lands should be shaped round. Long primary branches, however, should be encouraged, where the trees are planted sufficiently wide to permit of it, and the "leaders" only clipped to keep them within bounds. The reason for this is that a "branch" crop is generally considered preferable to a "stem" crop, as the former has proved itself to be more resistant to varying weather conditions.

In the case of hill side cultivation, trees have a tendency to grow taller than those planted on flat lands for the reason that they have not the opportunity of extending laterally and developing more "body." It is necessary however, to prevent them attaining a height of more than fifteen feet, for the same reason that I advanced in the case of their not being allowed to grow "down hill" branches: when the land becomes soaked, the weight of the top branches tends to capsize the trees down the hill.

Whatever be the situation of cocoa trees all "ingrowing" branches must be removed as also most of the "chupons" that grow on the primary and secondary branches. These "ingrowing" branches and "chupons" keep the centres of the trees too hot, thus reducing their bearing capacity.

The question of the growing of "chupons" as "Re-news" from the roots and "forks" of the trees is a big subject, quite by itself and cannot be entered into at length now. Suffice it to say however, that in my opinion every tree or group of trees should be treated on their own merits and that what applies to well shaped trees grown under the most favourable conditions on flat lands cannot be applicable to trees grown in exposed positions on steep hill sides. I believe however, that where hill side trees have had to undergo heavy pruning of the branches on the lower side, that a certain number of "chupons" must be retained on the upper side to reform the trees.

GENERAL TREATMENT.

In all localities trees should not be left more than two years unpruned, as the heavy cuts that it is then necessary to make, act as a set back to the productiveness of the trees and are detrimental to the health of the trees.

"Chupons" will commence to grow on all trees that have been pruned, not later than two months after cutting and it is necessary to remove all except those

it has been decided to grow, when they are not more than six months old. The trees continue to put out "chupons" all the year round and therefore it is essential to continue removing them at regular intervals, unless this is done, the trees will be sapped of much of their vigour.

In the use of pruning implements, e.g. the goulette and the cutlass, great care should be exercised to make 'clean cuts.' Jagged and uneven cuts, torn bark and splits, should all be avoided. All of these tend to a quick rotting of the "wounds" left on the trees and in the case of some badly made cuts, rot will extend to a depth of two inches in the course of two years. Slanting cuts should always be made in order that water may run off readily and not lodge there to cause rot and decay.

Cuts or "wounds" on the trees that have been caused by pruning should always be "dressed" with a disinfectant solution to further protect them against rotting. From experiments that have been conducted, it has been discovered that 'crude oil and lime' form the best disinfectant for this work. Such a "dressing" applied at this time, encourages the bark to grow back over the surface of the "wounds," thus bringing renewed vigour to the parts that have been cut. Where, however, "canker" has been discovered and cut out of the trees, pure 'blue stone' should be applied, where the disease has been removed.

Branches or parts of trees cut that have been suffering from disease or blight should not be left lying on the ground or buried. They should be carefully removed from the field and always burned. If buried the spores from the diseased tissues will find their way through the soil to the roots of healthy trees and cause them to become diseased.

Pruning cocoa should be carried on as far as possible in the Dry Season. The trees are then enjoying a period of rest, and if this operation is carried on then, the trees are ready with the advent of the Wet Season to burst forth into renewed life and vigour.

TRINIDAD

MONTHLY PRODUCE REPORT AND STATISTICS.

COMPILED BY EDGAR TRIPP & Co.

Port-of-Spain, 30th April, 1923.

CACAO.—Business has been exceedingly quiet throughout the month due no doubt to the want of interest shown by buyers in Europe and America. Prices which are purely nominal, may be quoted at \$9.00 for Plantation and \$8.50 for Middling Red qualities with a weak tendency.

Moderate supplies have been landed here from Venezuela, and these lots have been sold with difficulty at from \$9.50 to \$9.75.

SUGAR.—As will be noticed from the statistics furnished below there has been a steady improvement in prices in the United Kingdom and U.S.A., and it is anticipated will be greater next month, due, chiefly, to the general world shortage of the Sugar Crop this year.

There still remains a portion of this year's crop to be reaped but it is expected to come to a close next month.

The future year's crop is reported to be doing well.

MOLASSES.—Shipments of Vacuum Pan quality have been exported to the U.K. and U.S.A., but there are still ample stocks on hand for disposal.

COCONUTS.—Prices were steady around \$14.00 and \$8.00 for Selects and Culls respectively throughout the month, with, however, a weakening market.

COPRA.—There has been a good demand from London and the Continent and large shipments have been made. Prices from \$4.80 to \$5.00 per 100 lbs.

ASPHALT.—It is interesting to note the steady increase in exportation. Shipments to date total 52,171 tons as compared with 43,433, the largest amount shipped for a corresponding period during the last seven years.

OIL.—Shipments to date have more than doubled those for the same period last year.

CACAO.

Shipments of Trinidad Cacao During the Month of April, 1923.

Destination.			Weight in lbs.
To all countries	..	..	7,078,960 ..
Shipped previously	..	..	31,121,755 ..
			<hr/>
Total from 1st January	..	..	38,200,715 ..
To same date 1922	..	..	21,999,815 ..
„ „ 1921	..	..	31,335,237 ..
„ „ 1920	..	..	39,569,783 ..
„ „ 1919	..	..	25,422,728 ..
„ „ 1918	..	..	25,164,010 ..
„ „ 1917	..	..	44,024,259 ..
„ „ 1916	..	..	27,960,101 ..
„ „ 1915	..	..	30,704,080 ..
„ „ 1914	..	..	41,344,691 ..
„ „ 1913	..	..	27,503,212 ..
„ „ 1912	..	..	30,702,105 ..
„ „ 1911	..	..	23,699,791 ..
„ „ 1910	..	..	25,498,039 ..
„ „ 1909	..	..	25,101,356 ..

London Quotations for Ordinary:—

1st April per cwt.	..	..	56/—58/—
22nd „ „ „	..	..	54/—56/—
30th „ „ „ „	..	..	54/—56/—

To same date 1922	..	..	69/—70/—
„ „ 1921	..	..	60/—62/—
„ „ 1920	..	..	144/—
„ „ 1919	..	..	90/—
„ „ 1918	..	..	90/—92/—
„ „ 1917	..	..	87/—
„ „ 1916	..	..	90/—89/—
„ „ 1915	..	..	96/—90/—
„ „ 1914	..	..	62/—57/—
„ „ 1913	..	..	71/—
„ „ 1912	..	..	56/—59/—
„ „ 1911	..	..	57/—56/—
„ „ 1910	..	..	56/6—56/—
„ „ 1909	..	..	60/—58/—

New York Quotations :—

1st April per lb.	..	..	10c.
12th „ „ „	..	..	9 ⁵ / ₈ c.
30th „ „ „	..	..	9 ⁵ / ₈ c.

At same date 1922	..	..	10 ¹ / ₂ c.—11 ³ / ₄ c.
„ „ 1921	..	..	8c.
„ „ 1920	..	..	20 ¹ / ₄ c.—20c.
„ „ 1919	..	..	17 ³ / ₄ c.—23 ³ / ₄ c.
„ „ 1918	..	..	13 ¹ / ₄ c.—14 ¹ / ₂ c.
„ „ 1917	..	..	16 ¹ / ₄ c.—15 ¹ / ₂ c.

SUGAR.

Shipped for the Month of April, 1923.

To all countries	20,750,032	..
Shipped previously	14,549,024	..

Total from 1st January	35,299,056	..
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To same date 1922	50,164,025	..
" " 1921	35,105,391	..
" " 1920	45,619,074	..
" " 1919	39,127,147	..
" " 1918	14,228,480	..

London Quotations for Demerara Crystals:—

1st April per cwt.	..	..	54/—56/—
9th " " "	..	..	54/—57/—
12th " " "	..	..	57/—58/—
16th " " "	..	..	55/—58/—
18th " " "	..	..	56/—59/—
22nd " " "	..	..	58/—61/—
30th " " "	..	..	59/—62/—

At same date 1922	..	..	44/—	—43/6
" " 1921	..	..	62/—	—64/—
" " 1920	..	..	110/—	—111/—
" " 1919	..	..	57/9	
" " 1918	..	..	46/9	—57/9
" " 1917	..	..	40/1½	—43/1½
" " 1916	..	..	35/6	—43/1½
" " 1915	..	..	25/—	—28/—
" " 1914	..	..	13/6	—12/—
" " 1913	..	..	15/—	—17/9
" " 1912	..	..	19/3	—19/6
" " 1911	..	..	16/3	—15/—
" " 1910	..	..	16/9	—18/3
" " 1909	..	..	14/6	—15/3

New York Quotations, Crystals:—

1st April per 100 lbs.	..	7.28
6th " " " "	..	7.41
9th " " " "	..	7.52
10th " " " "	..	7.66
12th " " " "	..	7.78
13th " " " "	..	7.66
17th " " " "	..	7.78
18th " " " "	..	8.03
19th " " " "	..	8.06
20th " " " "	..	7.91
23rd " " " "	..	8.28
26th " " " "	..	8.54
27th " " " "	..	8.41
30th " " " "	..	8.41

At same date 1922	..	..	3.89— 4.11
" " 1921	..	..	6.27— 489
" " 1920	..	..	10.24—19.56
" " 1919	..	..	6.90
" " 1918	..	..	6.00½
" " 1917	..	..	5.83— 6.46

MOLASSES.

Shipped for the Month of April, 1923.

To all countries	Nil.
Shipped previously	26,000 gals.

Total from 1st January	26,000 "
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To same date 1922	60,046 "
" " 1921	24,081 "
" " 1920	218,544 "
" " 1919	84,123 "
" " 1918	212,490 "

RUM.

Shipped for the Month of April, 1923.

To all countries	...	..	4	„
Shipped previously	..	...	829	„
				<hr/>
Total from 1st January	..	..	833	„
At same date 1922	..	..	848	„
„ „ 1921	..	..	139,184	„
„ „ 1920	..	..	12,273	„
„ „ 1919	..	..	749	„
„ „ 1918	..	..	2,674	„

COCONUTS.

Shipped for the Month of April, 1923.

To all countries	..	..	1,339,615	„
Shipped previously	..	..	3,114,110	„
				<hr/>
Total from 1st January	..	..	4,453,725	„
To same date 1922	..	..	6,573,264	„
„ „ 1921	..	..	5,767,397	„
„ „ 1920	..	..	3,072,221	„
„ „ 1919	..	..	9,412,118	„
„ „ 1918	..	..	7,383,665	„
„ „ 1917	..	..	3,976,853	„
„ „ 1916	..	..	5,098,505	„
„ „ 1915	..	..	1,819,605	„
„ „ 1914	..	..	5,410,165	„
„ „ 1913	..	..	4,191,077	„
„ „ 1912	..	..	5,976,002	„

COPRA.

Shipped for the Month of April, 1923.

To all countries	..	..	1,248,300 lbs.
Shipped previously	..	..	2,170,845 ..
			<hr/>
Total from 1st January	..	..	3,419,145 ..
			<hr/>
To same date 1922	..	..	1,732,502 ..
„ „ 1921	..	..	1,194,130 ..
„ „ 1920	..	..	729,450 ..
„ „ 1919	..	..	400,360 ..
„ „ 1918	..	..	2,254,408 ..
„ „ 1917	..	..	2,127,302 ..
„ „ 1916	..	..	1,117,302 ..
„ „ 1915	..	..	1,586,267 ..
„ „ 1914	..	..	384,636 ..
„ „ 1913	..	..	502,292 ..
„ „ 1912	..	..	867,301 ..

ASPHALT.

Shipped for the Month of April, 1923.

To all countries	..	..	14,093 tons
Shipped previously	..	..	38,078 ..
			<hr/>
Total from 1st January	..	..	52,171 ..
			<hr/>
To same date 1922	..	..	39,396 ..
„ „ 1921	..	..	43,433 ..
„ „ 1920	..	..	35,404 ..
„ „ 1919	..	..	21,542 ..
„ „ 1918	..	..	9,985 ..
„ „ 1917	..	..	31,925 ..

OIL.

Shipped for the Month of April, 1923.

To all Countries	..	..	14,584,533 gals.
Shipped previously	..	..	20,039,896 ..
<hr/>			
Total from 1st January	..	..	34,624,429 ..
To same date 1922	..	..	15,429,584 ..
" " 1921	..	..	11,531,784 ..
" " 1920	..	..	14,018,270 ..
" " 1919	..	..	18,534,609 ..
" " 1918	..	..	11,463,297 ..
" " 1917	..	..	9,729,496 ..



Rainfall for April, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		EMIN		KING'S BAY TOBAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1
2	...	18	...	...	...	05	...	64
3	...	04	...	58	...	48	...	...
4
5
6	01	...	35	...	...
7	...	19	...	11	...	44	...	...
8	...	08	...	...	...	...	...	08
9	28	...	...
10	...	53	...	35	...	33	...	34
11	...	11	...	27	...	07	...	12
12	03	...	42	...	06
13	51	...	...	...	04
14	01	...	...	...	...
15	04	...	...	...	01
16	08	...	03	...	...
17	07	...	...	...	23
18	02	...	...	...	01
19	12	...	...	...	...
20	...	15	...	04	...	18	...	65
21	02	...	...	...	...
22
23
24	02	...	...	...	...
25
26	03	...	...
27
28	...	20	...	...	...	...	...	...
29	10
30	10	...	...	...	03
31
TOTAL	1	48	2	38	2	66	2	29

Note—April,	1922	...	...	...	2	01
" "	1921	...	...	...	5	67
" "	1920	...	...	...	1	22
" "	1919	...	...	...	1	58
" "	1918	...	...	...	1	63
" "	1917	...	...	...	0	15
" "	1916	...	...	...	1	80
" "	1915	...	...	...	2	15
" "	1914	...	...	...	1	64
" "	1913	...	...	...	0	75

Years—Total	1922	(at Lewisville)	...	81	16
" "	1921	...	...	78	79
" "	1920	...	...	59	07
" "	1919	...	...	60	19
" "	1918	...	...	70	58
" "	1917	...	...	75	64
" "	1916	...	...	69	41
" "	1915	...	...	70	57
" "	1914	54	86

PAMPHLET SERIES.

*The following can be had at the Office of the Society,
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- | | |
|--|---|
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| 266 Cacao Special Report on
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| 279 The West Indies and Canada | West India Committee Cir-
cular |
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- C. Glaudon.
- Report of Cocoa Committee.
- G. N. Walcott.
- Adopted at a meeting of the
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- Prof. H. E. Hendrickson.
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- R. S. Reid.
- Report of Joint Executive
Committee.
- Mr. W. G. Freeman, B.Sc.
- Dr. Geo. Masson.
- Report by Sec. submitted to
the Society.
- F. W. Ulrich.
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 M.R.V.S.

Proceedings of the Agricultural Society.

MAY, 1923.

EDITOR'S NOTES AND CLIPPINGS.

Subscriptions.—Members are again reminded that subscriptions to the Society for the year 1923 are due since 1st January and those Members who have not already paid are urgently requested to do so without delay.

(o) THE COCOA INDUSTRY.

The following letters have been received from the Secretary of the W.I. Committee, and Mr. H. Hamel-Smith, Editor of "Tropical Life," and are published for the information of Members of the Agricultural Society.

The West India Committee
14, Trinity Square,
5th April, 1923.

L. de Verteuil, Esq.,
Secretary Agricultural Society,
Trinidad and Tobago,
5, Chacon Street,
Port-of-Spain.

Dear Sir,

I duly received your letter of March 14th confirming your cablegram regarding preference on Cacao and communicating to us the full text of the Resolution and Rider adopted at a meeting of your Members on March 8th, in which your Society supported the representation

of your Chamber of Commerce in respect of preference on Sugar and Cacao, subject to greater stress being laid upon the latter part of the Resolution relating to preference on Cacao.

I should now inform you that special reference was made to the desirability of affording assistance to the Cacao Industry on the occasion of the Deputation of the West India Committee which waited upon the Duke of Devonshire on March 1st.

At the same time I should point out that the position with regard to Cacao is less simple than that respecting Sugar by reason of the fact that whilst the Sugar producing countries of the British Empire are unanimous in their desire to secure increased Preference, there is no evidence of a similar wish on the part of the Empire Cocoa producers. It will be very obvious to you that it would not be possible for the Imperial Government to differentiate in favour of Trinidad or West Indian Cacao, and I should mention that the only representations so far received in favour of increased Tariff Preference on Cacao are those which have reached us from your island.

Inasmuch as about 80 per cent. of the United Kingdom's imports of Cacao now comes from British West Africa, whose output is now nearly one-half of the world's production of Cacao, what the West Indies Industry requires is some protection against the overwhelming production of that country, and this would not be effected by an increased preference on British Cacao.

We appreciate, however, that the reduction of the Preference last year helped in some measure, Ecuador and Guayaquil varieties to compete with Trinidad, but for the reasons above set out, we fear that it will be difficult to induce the Government to increase the Preference on Cacao alone. It is, however, just possible that they may decide to increase the Imperial Preference on dutiable articles from one-sixth to one-third, which would, we assume, give the Cacao Producers of Trinidad the advantage which they require against foreign Producers,

though it would not obviously remove the menace of competition with West Africa which, indeed, by increased preference, would be placed in a position of being able to spend more money on the improvement of cultivation.

In conclusion I should mention that we are in communication with the Societies representing the British West African Producers with a view to ascertaining what their policy with respect to Preference is. You will realise that the position with regard to Preference on Cacao is not a simple one and that though it is our earnest desire to endeavour to secure some further advantage for West Indian Producers, this is not a matter of easy achievement.

I am,

Yours faithfully,

ALGERNON ASPINALL,

Secretary.

TRINIDAD COCOA AND ITS CONSUMPTION IN
UNITED KINGDOM.

The Secretary of The Agricultural Society.

Trinidad.

Dear Sir,

Yours of March 15th to hand. The contents have been most carefully noted. I also showed them to Mr. Pooley. After the Budget is known next week I will, probably, write you again.

Meanwhile, I beg to enclose reports from The Confectionery Journal of London—both for Sugar and Cocoa—published on March 29th and April 12th. The latter especially will give you some idea of my views on the matter. Mr. Pooley wrote asking if I had sounded anyone on the idea of their making a speciality of Trinidad Cocoa. This I have not done. It would be a slow process that I have not the time to give to. Perhaps an official note to the C.J. offering to collaborate with a firm would bring the desired results, but you, on your

side, must raise capital to have a dominating control in the concern with which it is proposed that you enter into partnership, and this capital can be raised, with the sanction of the local government, by levying a cess or export tax for one year on every bag of cocoa produced in Trinidad, that is exported. If this tax is put at one dollar, you would raise about \$300,000 or £60,000. Advertise this fact and you would get plenty of applications I am sure, and you need not put it all in one concern, perhaps in two, and those who want to object must remember that it is to give them up to 10% profit and if they can do better, well, why say that they are losing money? The profits I imagine run on a bigger scale than 10% and when the profits re-invested in extending the business also reach the dividend bearing stage, then of course you will get profits on profits—on paper (at present.)

The idea may not appeal to you, but it is not a new one, and I have not heard anything that seemed more likely (1) to increase the consumption of Trinidad cocoa in itself (2) to stimulate other firms to buy more if your firm or firms cause the public to want it.

TRINIDAD COCOA AND ITS IMPORTATION INTO THE UNITED KINGDOM.

To be very brief, in answer to yours of April 5th and also to the Trinidad Agricultural Society's letter of March 15th, I would at once say that nothing the coming Budget can do, will benefit Trinidad Cocoa, as the real growth that it wants protection against comes from the Gold Coast, which is another British Colony any form of preference in favour of another British producing centre, is altogether out of the question.

Looking quietly over the figures, I would call your attention to the fact that during the three years ending December 1922, Trinidad exported 912,000 bags of cocoa (about) of which 121,000 came to the U.K. and of these 57,000 were re-exported and only 64,000 retained for Home use. What do you think the House of Commons

will say of a growth, of which only $6\frac{1}{2}\%$ of the output in three years (when consumption in the U.K. had been on the increase, and was decidedly satisfactory) has gone into consumption in this country. I do not wish to be hard on Trinidad, but when approaching a department like the Exchequer you have to face facts.

The trying part of the matter is that low as the price of Cocoa is to-day, based on Accras at 36/- or less, f.o.b. Accras, the Governor of the Gold Coast (Sir F. G. Guggisberg) in a very chirpy manner has just assured his Legislative Council (in his annual speech on March 1st) that we shall be having Cocoa at this price 36/-, delivered in Liverpool with the prospect in the none too distant future, of laying it down there at 30/- even, whilst the Trinidad planter says it costs him \$11.00 to \$11.50 per fanega (110 lbs.) to put his Cocoa f.o.b. Even if it cost him 40/- only it can be at once seen how badly Trinidad needs to be protected against this West African rival.

Coming to another side of the story is it not true that Trinidad can put its Cocoa down in New York at 4/- if not 5/- less, per cwt. than if the same produce is brought to London? If this is the case, what is really needed is not so much a protective tariff, but far more reasonable dock and warehouse charges in London, and lower freights across the Atlantic, especially as those at present charged, however much they may have been reduced, are considerably above the rates to New York and also, I believe, are higher than the rates from West Africa to the U.K. Trinidad is not singular in its boycott of London because of its charges. Because London lowers, Liverpool need not.

Another circumstance which, if nurtured, may bring some relief to Trinidad, and certainly should "scotch" Sir Frederick Guggisberg's idea of Accras Cocoa at 30/- in Liverpool, would be to support that most excellent Governor's go-ahead policy to cover the area under his charge with much needed railways and motor-roads, and also develop the Takoradi Harbour Scheme to the full. All this in spite of official denials, would, I believe, need

anything between £20,000,000 and £30,000,000 sterling, and there is no doubt that if such amount could be forthcoming, the Gold Coast in the future, would benefit enormously in increased land values by the improved transport facilities that it would obtain. Where the scheme would interest Trinidad, lies in the fact that at present it can honestly be said, the African is producing his Cocoa at 10/- cwt., or very nearly that amount, below the genuine cost of production, where it is to be based on a commercial scale. Given these advantages (for the Gold Coast) the immediate result should be that their Cocoa will cost about 10/- cwt. more put f.o.b. Port of shipment. Here there is some chance of helping the West Indies against the unfair competition of the Gold Coast, but, of course, such a policy would have to be carried out with much tact and care. The Governor of the Gold Coast is due on this side on the eve of the Budget, and so it might be easy to approach him to discuss the matter of Cocoa production generally within the Empire.

Without being too certain, I believe that an article will appear in "The Spice Mill" of New York in April (its next issue) in which this question of the production of Cocoa on the Gold Coast, under cost price, will be discussed in full. I know such an article has been sent in for publication in some journal, but I am not quite sure which one it was, if not "The Spice Mill."

H. HAMEL-SMITH,

5 Great Tower Street

Editor "Tropical Life."

E.C. 3. 6/4/23.

LETTER FROM THE GENERAL SECRETARY OF
THE BRITISH EMPIRE PRODUCERS'
ORGANISATION.

30th April, 1923.

Dear Sir,

With reference to previous correspondence in regard to Cacao, I now beg to enclose copy of the Minutes of a Meeting of the Cacao Committee held on Monday,

16th April last. I was further instructed to suggest to you that as the whole question of Empire preference is being dealt with in full at the Empire Economic Conference it will be advisable to concentrate all our efforts on that campaign, which is now beginning by the dissemination of information among Members of Parliament and others, and which will take further expression in Publicity, a reasoned series of recommendations to the Imperial Conference, and a Deputation to the Chancellor of the Exchequer consisting of representatives of all the Oversea Industries enjoying or requiring preference. In the meantime the Minutes above referred to embody the suggestions of the Committee.

I have, however, had the advantage of a conversation with Mr. Aucher Warner who assures me that the present condition of the industry in Trinidad would not permit of a Cess such as is suggested, though he quite agrees that in principle the suggestion is right.

I trust that this will put you in possession of the whole of the situation and the attitude of the Organisation toward it.

I need only add that no effort will be spared to maintain your views and I am to ask that your Council will be good enough to consider this letter and its enclosure carefully and to give us the benefit of their opinion on the matter.

Yours faithfully,

H. POOLEY,
General Secretary.

The Secretary,

The Agricultural Society of Trinidad,
5, Chacon Street,
Port-of-Spain,
Trinidad.

A Meeting of the Cocoa Committee of the B.E.P.O. was held on Monday, the 16th April, 1923 at 12 noon.

Present: Messrs. Peter Abel, F. J. Morris, T. W. Rickaby, and H. Hamel Smith, General Secretary.

It was the general opinion of the meeting that no

change would be made in the Cocoa duties in the Budget for the year, but it was agreed that should any alteration be proposed the Council should be recommended to press for retention of the money value of the preference at least; and in case of any movement, that the earliest opportunity should be awaited to ask an increase in that money value.

In regard to the problems peculiar to Trinidad it was felt that from the nature of Trinidad cocoa mere customs preference could not be of sufficient importance, but that its fine quality should be made the basis of competition. It should therefore be suggested to the Trinidad industry that they should organise upon a co-operative basis and acquire an interest in an English Cocoa and Chocolate House with a view to making and advertising particularly Trinidad Cacao products. It was agreed that a memorandum on the subject should be prepared by Mr. Hamel Smith and the General Secretary and the Council be asked to forward it to the Trinidad Agricultural Society for their consideration.

CAN THE TROPICS PRODUCE MANUFACTURED COCOA OF FINE QUALITY TO PAY?

Here is the proposition. Raise £200,000 in a year by an agreed cess or tax of \$1 or 4/2 per bag on the million bags that can be looked for as the yearly export from the two large and two small producing centres mentioned. It might be arranged to spread the collection over two years, taxing each bag only 50 cts. a year. Far better, however, make sure of your money whilst the iron is hot. Then, with this money, either set up a factory of the capacity stated (144 tons of beans a week) at one centre or, far better, secure a share in five existing concerns, to the average value of £40,000 each, such concerns to be favourably situated in (1) The United Kingdom, (2) Canada, (3) Australasia, (4) The United States, (5) The Continent of Europe. The shares to be taken on the express understanding that a minimum

(average) output of 70 tons per week of beans from the centres supplying the capital be made up and sold as a separate blend, for powder, butter, or chocolate to each £10,000 of capital supplied. On paper, such a plan is a dead "cert" but—

Trinidad produces about 315,000 bags of cocoa a year (more or less.) At 15 bags (150 lbs.) to the ton, this means 21,000 tons. Ecuador, let us say, produces twice that quantity or 42,000 tons and Ceylon, Samoa, etc. has 5,000 tons all fine in colour, if not even in quality. Leaving out Grenada, Jamaica and the other West Indies, although they can come in if they like, we thus have nearly 70,000 tons of cocoa which, if blended together and made into powder, butter and fancy or plain chocolate by an "artist" who is also a keen man of business (and such things do abound outside novels) would be most acceptable and in fact would be run after (like the cats run to the Cat's meat-man in Mincing Lane) by all and everyone, once they were made aware of the pleasure of eating such a blend. All these centres are now busily engaged in making their wills (so far as cocoa is concerned) anticipating an early demise because of the menace of Accra and West African Cacao at £30 per ton in Liverpool, whilst (we are assured) 36/— f.o.b. the Coast ports is already too low for the non-African producers to compete against.

Talking cash, 70,000 tons should represent 1,050,000 bags of raw cacao, as shipped in one year from Trinidad, Ecuador, Ceylon and Samoa. Now if the planters at these centres are in as bad a state with regard to the present and the future as they have been making out for some time past (and especially since Sir Frederick Guggisberg, Governor of the Gold Coast, addressed his Council at Accra on March 1st last, and told everyone what to expect in the way of competitive cocoa supplies from West Africa,) they will be only too willing to make an effort for one year to save themselves from extinction for all time. If they cannot wind themselves up to do so, then we would claim that they

are not worth saving. Such a thing, however, is unthinkable, because after all a million bags or 70,000 tons of cocoa, even at present prices is worth in the U.K. £3,500,000 at £50 a ton only. Such a sum can buy plenty of machinery and manufactured goods whether the planters buy such things themselves or by passing the money on to others, enable them to do so.

Supposing therefore, that the cacao producing industries at these centres and this annual return due to them are in danger of "going West," what can be done to save them? Only one thing, so far as we can see, after studying the ins and outs of the case for many years back. Such a demand must be developed in the chief centres of the world for the superior class of powder and chocolate, that not only will the company that we suggest shall be formed to make such goods be able to pay its way (if not make a fortune, like any other big manufacturing concerns) but also and especially the demand that they will set going, will force the other makers to offer the same blend, or retire from the arena. The following suggestion, therefore, is not being made to create competition against existing firms but only to do away with the present fetish that African Cacao is good enough for anyone, by showing what no existing firm seems willing to prove at present, that if you create a demand for cocoa Products into whose make African cocoa does not enter, you will double and treble the sale of your wares. On the contrary, if any manufacturers in the U.K. in Canada, or America and elsewhere, will invite the planters to work the scheme proposed through them, then it will be better and best for everyone.

The scheme is this. Every bag of Cocoa shipped for one year must pay \$1 (4s. 2d.) to be put to a separate fund. This will give \$1,000,000 or about £200,000, which is sufficient, so far as we can make out, to purchase machinery to treat 7,000 to 7,500 tons of raw cacao in a year or 10% of the total output of the centres supplying the capital, besides leaving £25,000 for the land, factory, etc.

Without putting down actual value, we will give a list of the machinery required to make up 144 tons of beans a week, say 72 tons for powder and butter and 72 tons for chocolate products.

FOR COCOA.

- 12 Cleaners (of beans)
- 3 or 4 Germ extractors
- 18 Roasters Cap: 4 cwt. each.
- 9 Large winnowing machines
- 23 Triple Mills
- 15 x 10 pot presses
- 1 Butter filtering plant
- 1 Cake Breaker
- 10 Pulverising and Shifting Plants

FOR CHOCOLATE

(In addition to those in the other column.)

- 6 Sugar disintegrators.
- 5 Large melangeurs.
- 14 x 3 roll refiners.
- 18 x 5 roll refiners.
- 20 x 2½ tons conches.
- 20 x 1000 lb. Choc. Kettles.
- 8 Tempering Machines.
- 8 Mouldering and Cooling Plants.
- 1 Large (12 ton) capacity refrigerating plant.

Approximate cost £175,000. To handle about 144 tons of Cacao beans a week, or about 7,000 tons a year.

1ST PERIOD.

Record of the Crops and Yield obtained on La Providence, and San Antonio Estates, for the period of fifteen years, from 1908 to 1923 inclusive, showing Revenue and Necessary Expenditure, and Balance to Credit after deducting Expenditure, and Interests on Mortgages, &c.

Tabulated on a five years' basis. These Properties are situate in the Country of Victoria, Savana Grande and Oroide Wards.

YEARS.	No. of Bags of 150 lbs. net.	Yield per 1,000 trees No. of bags of 150 lbs. net.	Average Price per tonwain.	Average price per bag of 150 lbs. net.	Amount realized from the sale of the Crops.	Amount realized from the sale of other coffee, cocoons, and Bananas.	Total Amount of Revenue obtained from the Estates	Total Amount of Expenditure	Amount to Credit on Cash or Net Proceed.	Amount of Interest Committed on Mortgage, and from Net Proceed.	Amount of Balance Balance after paying Interest, Com., etc.	Amount of Balance to Debit
1908 Very Good.	577	12	\$ 14.88	\$ 22.32	\$ 12,873.32	\$ 183.34	\$ 13,056.66	\$ 5,492.67	\$ 7,563.99	\$ 2,460.64	\$ 5,103.35	NIL.
1909 Good.	499	10 1-3	11.76	17.65	8,803.97	139.82	8,943.80	5,195.57	3,748.23	2,896.94	851.21	NIL.
1910 Very Good.	653	13 1/2	11.48	17.24	11,258.91	99.32	11,358.23	5,617.98	5,740.25	3,824.46	1,915.79	NIL.
1911 Good.	507	10 1/2	11.82	17.73	8,994.12	306.19	9,300.31	5,031.09	4,269.22	2,772.59	1,496.63	NIL.
											\$9,367.06	
											1,436.11 *	
1912 Very Bad.	284	6	12.30	18.47	5,247.76	141.26	5,389.02	3,955.59	1,433.43	2,869.54	NIL.	1,436.11 *
Total five years	2,520	Average Yield per 1,000 trees 10 1/2 Bags.	Average Price per tonwain \$12.48	Average Price per bag of 150 lbs. net \$18.72	Average for 5 years \$47,172.08	Average for 5 years \$869.94	Average for 5 years \$48,048.02	Average for 5 years \$25,292.20	Average for 5 years \$22,755.12	Average for 5 years \$14,824.17	Average for 5 years \$7,930.95	\$1,436.11
Average for 5 years	504 Bags.				\$9,455.61	\$173.98	\$9,609.60	\$5,038.58	\$4,551.02	\$2,664.83	\$1,586.19	\$1,436.11

Cost of Production per bag of 165 lbs. net 1908 \$9.52—1909 \$10.41—1910 \$8.60—1911 \$9.92—1912 \$13.92. Average for 5 years \$10.03.

Net proceed per bag of 165 lbs. net 1908 \$12.80—1909 \$7.24—1910 \$8.64—1911 \$7.81—1912 \$4.55. Average for 5 years \$8.69.

During this period I picked from 48,000 bearing trees, which gave me an average crop of 504 bags of 165 lbs. net for 5 years, and a yield of 10 1/2 bags of 165 lbs. net per 1,000 trees—equal to 1.73 per tree call it 1 3/4 lbs per tree.

I had no rain gauge previous to 1912 and can give the rainfall only from that year upwards. The rainfall for 1912 was 66 inches and 46 parts.

2ND PERIOD.

YEARS	No. of Trees of 1 1/2 lbs. net.	Yield per 1,000 trees No. of bags of 1 1/2 lbs. net.	Average Price per Foreign per Foreign.	Average Price per bag of 1 1/2 lbs. net.	Amount realised from the sale of Cocoa.	Amount Realised from the sale of other products, such as Tobacco Beans and Bananas.	Total amount of Revenue Accrued from the Estates.	Total amount of Necessary Expenditure.	Amount to Credit of the Estates or Net Proceed.	Amount of Interest charges on the loan Net Proceed.	Amount of Balance to Credit of the Estate after paying Interest and Com- mission etc.	Amount of Balance to Debit.
1913 Very Bad.	316	6	\$14.42	\$21.63	\$6,836.03	\$36.23	\$6,872.26	\$3,048.94	\$3,824.22	\$2,548.00	\$1,276.22	NIL
1914 Very Good.	574	11 1/4	12.28	18.44	10,587.08	65.83	10,652.91	3,339.50	7,113.41	2,548.00	4,565.41	NIL
1915 Bad.	347	6 3/4	16.12	24.18	8,391.17	70.15	8,461.32	3,976.23	4,485.09	2,616.34	1,868.75	NIL
1916 Good.	484	9 1/2	15.14	22.71	10,994.90	24.94	11,019.84	4,411.70	6,608.14	2,443.00	4,165.14	NIL
1917 Very Good.	612	12	12.30	18.46	11,303.00	73.08	11,376.08	4,715.60	6,660.48	2,303.00	4,357.48	NIL
Total for 5 Years.	2,333				\$48,112.18	\$270.23	\$48,382.41	\$19,691.07	\$28,691.34	\$12,458.34	\$16,233.00	
Average for 5 Years.	466 1/2	Average Yield for 5 years 1000 trees.	\$13.74	Average price for 5 years 1 1/2 lbs. net.	\$20.62	Average for 5 years	\$9,676.48	Average for 5 years	\$5,738.26	Average for 5 years	\$3,246.60	NIL
					\$9,622.43	\$54.04		\$3,938.21		\$2,491.66		

Cost of production per bag of 165 lbs. net 1913 \$9.64—1914 \$6.16—1915 \$11.45—1916 \$9.13—1917 \$7.69 average for 5 years \$8.44.

Net proceed per bag of 165 lbs. net 1913 \$11.99—1914 \$12.28—1915 \$12.73—1916 \$13.58—1917 \$10.77 average for 5 years \$12.18.

During this period I picked from \$1,000 bearing trees which gave me an average crop of 466 1/2 bags of 165 lbs. net for 5 years and a yield of 9 bags of 165 lbs. net per 1,000 trees—equal to 1.51 lbs per tree, call it 1 1/2 lb. per tree

The Rainfall for 1913 was 73.25—1914 76.39—1915 88.22—1916 86.69—1917 84.02.

5RD PERIOD.

YEARS	No. of Bags of 165 lbs. net	Yield per 100 Trees No. of Bags of 165 lbs. net	Average price per 100 lbs. net	Average price per 5 Years per Bag	Average price per 5 Years per Bag of 165 lbs. net	Amount Realized from the sale of Cocoa	Amount realized from the sale of rubber, Produce, Cacao, Gum, etc.	Total Amount of Revenue accrued from the Estates	Total Amount of Expenditures	Amount to Credit of the Estates or Net Proceed.	Amount of Interest and Commission paid	Amount of Balance to Credit of Estates and netting interest Commission, etc.	Amount of Balance to Debit
1918 Bad.	360	634	\$13.65	\$20.49	\$7,378.44	\$94.87	\$7,473.31	\$4,194.56	\$3,278.75	\$2,163.00	\$1,115.75	NIL	
1919 Fair.	428	8	21.28	31.92	13,664.01	46.35	13,710.46	5,326.58	8,383.88	2,023.00	6,360.88	NIL	
1920 Bad	379	7	24.24	36.36	13,783.16	37.62	13,820.78	8,115.14	6,429.05	2,686.09	7,100.04	NIL	
1921 Good.	562	10 1/2	9.50	14.26	8,016.64	98.50	8,115.14	5,710.64	5,087.93	622.71	NIL		
1922 Very Bad.	324	6	11.64	17.47	5,661.01	49.63	5,710.64	5,087.93	622.71	NIL			
Total for 5 Years.	2,053	Average for 5 Years 7 3/4 bags per 100 trees.	Average price for 5 Years per Bag \$15.75	Average price for 5 Years per Bag of 165 lbs. net \$23.63	\$48,503.26	327.07	\$48,830.33	\$26,062.86	\$22,767.47	\$4,882.00	\$17,885.47	NIL	
Average for 5 Years.	410 1/2				\$9,700.65	65.41	\$9,766.06	\$3,212.57	\$4,553.49	976.40	\$3,577.09		

Cost of Production per bag of 165 lbs. net 1918 \$11.65—1919 \$12.44—1920 \$15.89—1921 \$9.66—1922 \$15.70 average for 5 years \$12.69.

Net proceed. per bag of 165 lbs. net 1918 \$8.84—1919 \$19.48—1920 \$20.47—1921 \$4.60—1922 \$1.77—average for 5 years \$10.94.

During this period I picked from 53,000 bearing trees which gave me an average of 410 1/2 bags of 165 lbs. net for 5 years and a yield of 7 3/4 bags of 165 lbs. net per 1,000 trees—equal to 1.27 lbs per tree call it 1 1/4 lbs. per tree.

The Rainfall for 1918 was 92.94—1919 73.20—1920 70.67—1921 103.93—1922 92.43.

The amount of bags of 165 lbs. net made for the 15 years was 6,906 bags giving an average Crop of 460 1/2 bags per year, and average yield of 9 bags per 1,000 trees—equal to 1.46 lbs per tree more or less 1 1/2 lb. per tree.

The average cost of production for 15 years was \$10.28 and the average net Proceed for 15 years was \$10.54. The average price per bag of 165 lbs. net was \$20.82 equal to \$13.88 per Tanega.

If my properties gave this return I have no doubt that my neighbours' properties which more or less are cultivated much the same as mine have given the same results, and Properties situate in more favourable Cocoa districts must it stands to the reason have given much better results. Mr. Stontes of Manzanilla told me his estates gave 10 bags the 1,000 trees.

(*SOCIETY PAPER No. 794.*)

**RECORD OF CROPS AND YIELD OBTAINED ON
'LA PROVIDENCIA' AND 'SAN ANTONIO'
CACAO ESTATES.**

**FOR THE PERIOD OF 15 YEARS 1908-1922 AND
SHOWING REVENUE AND EXPENDITURE.**

*Read by Mr. C. P. Rojas at the meeting of the Society
held on the 10th May, 1923.*

Mr. President and Gentlemen,

My motive for going to the trouble of preparing this paper and giving the Society a resume of the crops, yield and revenue obtained from my Cocoa Estates, is to remove, if it is possible, any undue misapprehension which certain letters, written on the subject of the Cocoa Industry, and published in the local papers of 31st January last, may have created in the mind of the Government, Capitalists, Bankers, the general public and last but not least, the despondency and gloom that such letters must have cast in the mind of the poor unfortunate Cocoa Proprietors.

These letters must have been read by the public with great interest and must have biased the minds of many against the Cocoa Industry. These letters in my humble opinion, were most damaging to proprietors and the Industry in general.

The writer makes the bold statement that 80% of the areas known as Cocoa Estates are not giving 3 fanegas of Cocoa to the acre and the bulk considerably under this return of cocoa, although I do not agree with regard to yield of cocoa per acre as I have always understood that the yield of cocoa was reckoned according to the number of bearing trees, yet my estates gave a return of 3 1-3 fanegas per acre for 15 years and the estates that are situated in more favourable cocoa producing districts, must it stands to reason, have given more than 3 1-3 fanegas the acre and those in my district must have given the same return as mine, more or less. I will now read you my paper and sincerely trust that it may interest you.

The total amount of Revenue for 15 years
 was\$ 145,260.76

The total amount of Necessary Expenditure
 for 15 years 71,046.83

The balance to Credit after deducting
 Necessary Expenditure 74,213.93

The total amount of Interests, Commission,
 &c. paid for 15 years 32,164.51

The balance to Credit after deducting In-
 terest, Commission, &c.\$ 42,049.42

This amount gave me a net income of \$ 2,803.29
 each year.

The Properties comprises 216 acres—these are under Cocoa cultivation, 208 acres and 8 acres are in House spots, yard, grass plots, roads, &c. There are 62,400 trees all told of which 53,000 are bearing trees and 9,400 are halves, quarters, supplies and nursing trees. This represents an average of 85% of bearing trees and 15% non-bearing trees. The acre contains planted 12 x 12 300 trees, therefore 208 acres are equal to 62,000 trees. In 1909 the Estates were valued at \$70,800.00. The amount to the credit of the Estates at the end of the 15 years was \$74,213.93. Therefore in 15 years the Estates paid themselves. \$74,213.93 represent an average of \$4,947.57 per year for 15 years which represents 7% interest per annum on the capital value of \$70,800.00. The Estates were mortgaged for the sum of \$36,400.00 at the rate of 7% interest per annum. By the above figures which speaks for themselves it is plainly seen that the mortgagees were fully

secured with their investment, and allow me to say they have since been paid off. The Estates contributing \$20,000.00 out of the \$42,000.00 it had to its Credit and \$16,400.00 I got from other sources.

The Necessary Expenditure includes Manager's salary, Overseer's salary, Drivers, Servants, Groom, Premium on Fire Policies, Ward Rates, Gun Licenses, Buggy and Carts' Licences, every item imaginable in connection with the Estates. I draw a salary as Manager of \$100.00 per month. Now for the 15 years my salary averaged \$900.00 a year. Herewith a copy of my fortnightly Abstract giving the expenditure for the year 1921.

I beg to contradict the statement of the writer of the letters in question with regard to "That the time has now arrived when it must be recognised by the community in general that valuation of Cocoa Estates as customarily arrived at, has been far above the actual market or intrinsic value for many years and have misled both purchaser and lender." My case before you now may be looked upon as an exception, "But the exception proves the rule." There may have been some cases when cocoa estates were over-valued but there were not many and in most of such cases, the chances were, that the unfortunate owner lost his property but the investor got back his money.

The Cocoa Industry is certainly in a very precarious condition, and requires immediate help from the Government, and unless it is rescued in due time many large owners and peasant proprietors, perhaps 60% may lose their holdings, and their families and dependents reduced to misery. In my humble opinion, the taxpayers as a body run no risk if the Government would create an Agricultural Loan Bank as the writer of the letters in question insinuates, I am certain that there are men in our community of good moral standing, and honourable enough not to mislead the Government, and the taxpayers by making valuations of Cocoa Estates above the

actual market or intrinsic value, but would value Estates according to the market value as it stands to-day, and who would not recommend loans to those whose holdings unfortunately for them, may be encumbered beyond redemption.

Some years ago the Sugar Industry was like the Cocoa Industry is to-day, in a critical condition, and the Imperial Government, as you are all aware, gave a substantial grant to the Colonies to help the Sugar Planters tide over the bad times. Why should the Cocoa Industry not receive the same assistance from the Imperial Government in the shape of a grant towards the creation of an Agricultural Loan Bank. I desire it to be distinctly understood that I have no axe to grind. I am not speaking for my personal interest, my Estates, thanks be to God, are unencumbered; I am speaking for the welfare of the Cocoa Industry of the Colony in toto, and for the good of every individual cocoa proprietor, both great and small, of which I am also one, but I would, perhaps, take advantage of a loan to improve my estates by intensive cultivation. The sooner the Government realises the position of affairs with regard to the Cocoa Industry of the Colony, the better it would be for all concerned and the Colony as well, the writer of the letters says that from all he can gather of the popular idea here regarding an Agricultural Bank, it would be more warrantable for the mercantile community to petition the Government for a grant of public money in order to meet its obligations on account of losses made in these unprecedentedly hard times. He must have lost sight of the fact that without agriculture the merchants would not be able to exist. Agriculture is the back-bone of every country the world-over. It is Agriculture that gives money to labour, and it is to Agriculture and labour that merchants owe their existence, hence merchants should be kindly disposed towards agriculture, and both should be reciprocal to each other, since one cannot do without the other. I am hopeful and believe that if the Cocoa Industry receives timely help from the Government it will,

I feel certain, recover from the present crisis. The only thing that may retard the recovery is the state of affairs in Europe, and also the advantage the manufacturers are taking over the producers. If the manufacturers would reduce the price of the manufactured article, consumption would increase, and the price of the raw material would also increase. I anticipate no fear with regard to over-production, Cocoa is so subject to atmospheric condition, season and rainfall and on that account the crops are so variable, that it is very rare that two good years follow and I presume, the same state of things prevails in all Cocoa producing countries. Anyhow, I have not lost all hopes and confidence in cocoa yet, and I trust that with the assistance of the Government with the Agricultural Loan Bank and above all, the help of Providence, the Cocoa Industry will soon recover its balance and enjoy once more a very prosperous time.

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GENERAL MEETING.

Minutes of the General Meeting of the Society, held in the Council Chamber on the 10th May, 1923.

Present :—W. S. E. Barnardo, President, in the chair, Hon'ble A. B. Carr, Vice-President, Messrs. W. G. Freeman, Director of Agriculture, Wm. Nowell, Assistant Director of Agriculture, Revd. H. H. Morton, C. P. Rojas, J. Black, F. Le Blanc, H. Gajadharsingh, S. Medford, A. A. Sobrian, A. V. Stollmeyer, A. Mendes, A. de Boehmle, L. Schuelt, J. Lickfold, E. Radcliffe Clarke, Captain A. A. Cipriani, P. A. T. O'Connor, C. A. Palmer-Chizzola, Lieut.-Col. J. H. Collens, G. C. Wyatt, Wm. Dickson, Sir F. Watts, H. Warner and L. de Verteuil, Secretary.

Minutes :—The Minutes of the Meeting of 12th April were confirmed.

Diploma of Merit :—The presentation of a Diploma of Merit, to Mr. Ramcoowarsingh, was postponed to the next meeting.

Election of New Members :—The following were elected Members of the Society :—Hon'ble C. de Verteuil, C.M.G., Proprietor, V. J. Stauble, Proprietor, A. F. Clarke, Manager Cocoa Estate.

Correspondence :—(1) The Secretary read a letter from Mr. A. Aspinall, C.M.G., Secretary of the W.I. Committee regarding the Preferential treatment of Cocoa. The Secretary was instructed to have the letter published in the Local Press, for general information.

(2) A letter was received from the General Secretary of the British Empire Producers' Organization announcing the election of Mr. H. Hamel Smith, as a co-opted member of the Organization, to represent the Cacao Industry and enclosing a Memo from Mr. H. Hamel Smith with regard to the Cacao Industry. A letter was also received from Mr. H. Hamel Smith on the same subject.

Yield and Cost of Production of Cacao :—A very interesting paper, replete with useful information, on the above subject was read by Mr. C. P. Rojas and will appear in the Proceedings of the Society for the month of May.

After Captain A. A. Cipriani had commented favourably on the Paper, he referred to the labour question and to the long-delayed creation of an Agricultural Bank but the Chairman thought he was going outside the question at issue. On the ruling of the Chairman, the debate was then closed and a vote of thanks was accorded Mr. Rojas.

British Empire Exhibition 1924 :—Hon'ble A. B. Carr moved :

“ That in the opinion of this Society, it is highly desirable that the Colony of Trinidad and Tobago be represented at the British Empire Exhibition, and that the necessary funds be granted by the Government.”

Mr. Carr said, that the motion was necessary to strengthen the hands of the Government, in the granting of a contribution towards the Empire Exhibition, so that the Colony be represented. He had no doubt that it was advantageous that such an opportunity be taken to show what the Colony could produce, especially with regard to the main industry of the Island, Cacao, which should be exhibited under the form of well prepared chocolate.

Mr. E. Radcliffe Clarke seconded and the motion being put to the vote was carried.

World Conference of Cacao Producers :—Mr. E. Radcliffe Clarke moved:—

“That in view of the disparity between the prices paid to the producer of raw cocoa and the prices paid by the consumer of the manufactured article which naturally restricts consumption and impedes the demand for the raw product, the British Empire Producers Organisation be asked to circularize the cocoa producers of the world to join in a movement for convoking a world conference in England on the occasion of the coming exhibition, to discuss the parlous position of Cacao, and to decide what (if any) united action should be taken to secure a fair return to the producers, and that this Society place at the disposal of the Organization such sum as might be deemed sufficient as a contribution towards the movement.”

Mr. Clarke read a letter he had addressed to the Secretary of the British Empire Producers' Organization, and which contained his arguments. He referred to the high nutritive value of Cacao as a food and how its consumption was hampered by the high price paid for Chocolate.

Mr. A. V. Stollmeyer seconded and thought the suggestion a good one and that no time should be lost in

dealing with the matter, but he did not think, as producers, they should interfere with the manufacturing side of the industry.

Mr. A. A. Sobrian supported the resolution but was still of the opinion, that the establishment of a local Chocolate Factory would bring a greater measure of success for the industry and would save very much of the expenses in the handling of the produce to markets outside the Colony.

The meeting terminated at 3.45 p.m. Mr. Wm. Nowell's notes on the disposal of Cacao husks and black pods, were postponed to next meeting.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

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REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

SAVANA GRANDE.

The February meeting of the Savana Grande District Agricultural Society took the form of a field demonstration at the Cane Farmers' Demonstration Plot at Golconda Estate. The meeting was well attended.

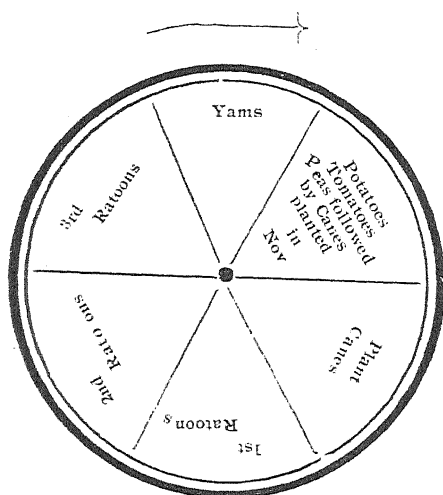
The Ste. Madeleine Sugar Co., Ltd., placed a 'bus at the disposal of the members to convey them to and from the plot to the Railway Station.

Mr. Jones, Cane Farmers' Superintendent of the Company, explained the principles on which the plot was run. It had been in existence for four years and was started with the object of demonstrating in a practical

manner how a cane-farmer working steadily on his land and by following sound agricultural practice could make a living from growing canes.

The area of the whole plot is 3 acres and it is divided into 6 equal portions. The cultivation of yams is regularly practiced on 1-6th of the area. Another 1-6th is taken up with the growing of tomatoes, potatoes, peas, followed later in the season by young canes. The third one-sixth is in plant canes, the fourth in 1st Ratoons, the fifth in second Ratoons and the sixth in 3rd Ratoons.

The total tonnage of canes reaped during 1922 crop was 59 tons and in 1923 61 tons.



The above diagram illustrates the position of the yam crop in the rotation. As soon as the 3rd Ratoon crop of cane is reaped the old stools are dug out and the land prepared for yams.

Mr. Jones here called upon the Agricultural Advisor Mr. Boodansingh, who during 1922 conducted experiments with the view of determining (1) the best method

of soil preparation and (2) the effect of pen manure to explain the method of cultivation.

Mr. Boodansingh then explained the details of the experiments as follows:—

The soil is moderately good but on the heavy side for ground provisions—this is a common fault with the Naparima soils.

During 1922-23 two methods of soil preparation for yams were tested one against the other:—

- (a.) Holing;
- (b.) Trenching.

The holes were dug 2ft. in rows which were 5ft apart and each hole was 18 ins. deep. The trenches were dug 18 ins. wide and 18 ins. deep and were also 5 ft. apart. The yams were planted 2 ft. apart in the rows.

The trenching method yielded 4,485 lbs. per plot—17,940 lbs. per acre— $5\frac{1}{2}$ lbs. per hole.

The holing method gave 3,582 lbs. per plot—14,128 lbs. per acre— $4\frac{1}{2}$ lbs per hole.

The trenching system therefore yielded 26% more yams than the holing method.

The effect of applying pen manure was also tested. The manure was applied in the bottom of the holes and trenches in layers mixed with soil at the rate of 30 tons per acre. Six rows were thus treated and six rows remained unmanured.

The manured rows yielded 4,120 lbs. of yams and the unmanured rows yielded 3,897 lbs. of yams an increase of only 5.7% which certainly did not pay for the the expense of the application.

A general discussion followed, numerous questions being asked and an endeavour to answer them. A most instructive afternoon was spent by all those present.

The May meeting of the Savana Grande Agricultural Society was held at the Court House on Tuesday 1st ultimo at 4 p.m. when there were present Capt. Mark S. Moody Stuart (President), Mr. David Mahabir (Vice-President), Mr. G. A. Jones, (Hon. Secretary), Capt.

R. C. Gooden Chisholm, Capt. C. A. V. Foster, Messrs. G. C. Wyatt, G. Nunez, J. H. Dube, S. Garcia, Sam Ryan, Webster, Dingwell, Wm. Bartley, Jules Mahabir, L. R. Sinkia, Ramcoowar Singh, A. E. Jones and M. B. Collymore, Hon. Assistant Secretary.

The minutes of the April meeting were read and confirmed.

CORRESPONDENCE.

A letter was read from the Hon. Secretary informing the Director of Agriculture that this Society has availed itself of his kind offer of a Toggenberg goat for breeding purposes and had made arrangements with Mr. Ernest Fabien, Manager of Cedar Hill estate to have same properly stalled and fed.

Letter from the Secretary of the Parent Society asking for further information re the Diploma of merit to Mr. Ramcoowar Singh. The Secretary replied that Mr. Ramcoowar Singh had excelled in all phases of his garden in the district and having repeatedly been the winner of first prizes he was entitled to a diploma from the Parent Society.

Professor Cunliffe wrote expressing his regret that his compulsory absence from the colony would preclude the possibility of his lecturing to the Society and offering as a substitute the manuscript subject to the approval of the Secretary. The latter in reply accepted the Professor's offer at the same time requesting him to forward photographs along with manuscript which had been done.

The Secretary then read the report of the Vegetable and Rice Competition, the adoption of which was moved by Mr. Wyatt seconded by Mr. Nunez and unanimously carried. Mr. Ryan, the Hon. Secretary of these competitions was heartily thanked for the energy and interest he had shown, without which the competitions could not have been as successful as they had been.

VEGETABLE PRIZE COMPETITION.

Princes Town,

January 8, 1923.

Mr. Chairman and Gentlemen,

I have the honour to submit a report on the judging of the 5th annual Vegetable Prize Competition for the year ended 1922. The period of judging took five days. Eighty-three holdings entered for the competition and are made up as follows:—Forty-three for purely Vegetables, and thirty-nine Cane Farmers for Catch- Crop, canes being their staple product. The following is an analysis showing in detail the aggregate number who competed in the various districts to which the competition was limited.

District	Vegetables	Cane Farmer's Catch Crop	Total
Princes Town	23	22	45
Moruga Road	11	6	17
Iere Village	5	11	16
St. Julien	5	—	5
	<hr/> 44	<hr/> 39	<hr/> 83

After a careful comparison of the merits of each Competitor's work in their cultivation I have the honour to recommend that prizes be awarded to the following competitors whose points may be seen tabulated below:—

VEGETABLE SECTION.

Order	Name	Locality	Pts
1	Simon White	Princes Town	88
2	Ramjohn	do.	83
3	Ephraim Baptiste	do.	80

CANE FARMERS' CATCH CROP SECTION.

Order	Name	Locality	Pts.
1	Henry Bartley	Princes Town	74
2	John Ogaroo	do.	65

VEGETABLE SECTION.

Order	Name	Locality	Pts. Special
	Ramcoowarsingh	Moruga Road	prize
1	Mahangoo	do.	99
2	Lionel Ragbir	do.	84
3	Dubé Ramnarine	do.	75
1	John Cummings	Iere Village	81
2	Choweaware	do.	75
1	Anjour Sadhoo	St. Julien	81
2	Mahajar	do.	80
3	Lakhan	do.	68

CANE FARMERS' CATCH CROP SECTION.

Order	Name	Locality	Pts.
1	James Hercules	Moruga Road	70
2	Augustus Andrew	do.	63
1	Madhoo	Iere Village	85
2	Birball	do.	82
3	Nathaniel Gazee	do.	73

In the Princes Town District, Simon White comes first again this year. His cultivation is excellent, and the rotation of crops is well thought out. This vegetable garden ought to be an ideal object lesson to the community of this district as it presents some striking features in the formation of a garden and the growing of crops. It is just near the Knolly's Recreation Ground which is easily accessible and an afternoon spent there, will no doubt be of greatest value to anyone wishing to learn

something about gardening and presumably those that are interested would be impelled to adopt the system and get the best yield from their holdings.

Ramjohn comes second, and considering him as a junior to the other Competitors is a very strong rival, and should he continue, will establish a reputation for progressive methods of agriculture. He has been beaten by only five points.

It might be well to make mention of Ephraim Baptiste who comes third. If a little attention was paid and energy developed towards his garden the winner of the second prize would have been in his stead.

The competitor Ramcoomarsingh of Moruga Road has excelled in all phases of his garden in this district. The constancy with which in the past few years he was successful in obtaining first prize, warranted him a Diploma from the Parent Agricultural Society. The ambition with which he has so strenuously worked in his garden characterizes him as an industrious man; taking these circumstances into consideration I strongly beg to recommend him for a special prize. I further appeal that this prize be awarded on the grounds that there are others who are anxiously looking forward to attain the same attitude and excellence as this competitors.

Mahangoo, who comes first in the Moruga District is the closest rival to Ramcoowarsingh, his work has been of high order and as a gardener in an extensive scale, specially prepared an area of land for the competition, which presented to me a most striking feature as an ideal garden. I also beg to recommend to this competitor a Diploma of Merit, the reasons being that he is a winner of several second prizes, and the assiduity and industry displayed in his toil are of sufficient merit.

Lionel Ragbir Dube, coming second again this year has done remarkably well. His garden is fairly well laid out and bears a close similarity to that of the Indian Walk Government School. Slight defects should be overlooked, considering that he has just recently been engaged in such agricultural work, and intends to make this, his sole means of livelihood.

In the St. Julien District Anjour Sadhoo and Majahar have done good work, the former coming first and the latter second. It will be noticed that the latter has been beaten by one point and this was simply due to irregular planting in a certain section of his holdings.

John Cummings has again topped the list in his district. The soil in his region is clayey and tenacious is consequently rather poor. By his adopting good cultural operations and proper system in the rotation of crops, not only brought about good tilth but has enabled him to produce a good supply of food, yam being the chief. He is intensely interested in the competition.

Considering the small number of competitors in the Vegetable Section at Iere Village, it is with great regret that I cannot recommend a third prize to the competitor, Henry Brewster, an aged man of 80 years. Although his name appears third in the list in this district he has fallen below the minimum number of points required. I have made special mention of this competitor, because of his age and also because his tillage shows some improvement, it is a pity he has overlooked his cultivation for some reason or other. I sincerely hope, that his industry, agriculturally, for an aged man would serve as an incentive to adjoining neighbours and rival competitors.

With regards to the Cane Farmers Catch Crop Section this has been a new feature added to the Vegetable Prize Competition in order to show to the cane farmers that growing catch crops in their canes is equally important and a paying proposition, while their canes, their staple crop, are growing, by proper systematic planting of the Catch crops they would be able to provide more food for their domestic needs, surplus sold, the proceeds of which will assist them in procuring other necessities of life.

Being the first competition of the kind in the Savana Grande District 39 entered without any hesitation and as many more could have been taken but were too late for the judging.

According to the order of merits already mentioned Iere Village is the only district to which I am able to award a third prize, as the remainder have fallen below the percentage of marks allowed.

Madhoo and Birball in this particular section have done excellent work, and the superiority of their work was more noticeable than in any of the competitors.

Tillage operations have greatly improved in all the districts but the Moruga Road has excelled. Under this head I wish to comment that the undulating condition of the lands and the terrace form of cultivation obviated the necessity of forming extra drains beside those that were necessary for the formation of the plots and for conveying surplus water.

In conclusion, I do not think that it would be out of place if I were to remark that during the past few years the sugar cane became the most popular crop owing to the high price this article then obtained. The growing of food was very much neglected, and in consequence a shortage of this important necessity of life was felt and the price of it rose considerably, and at times not procurable. The cane no doubt is easier to grow and in those periods the price being then very high seemed a quicker way of making money. The truth is that any undertaking which affords an easier way of obtaining money becomes very popular and the attention of every one is directed towards it. Cane was such a feature that many followed it up closely without paying the slightest attention to growing crops of economic importance and perhaps paying better too, but the fall in price of sugar cane has materially altered the situation and has resulted in a marked increase in the interest evinced in this agricultural matter.

I am,

Mr. Chairman and Gentlemen

Yours faithfully,

(Sgd.) T. BOODAN SINGH,
Agricultural Advisor.

RICE COMPETITION.

Savana Grande District Agricultural Society Competition Committee.

Mr. Chairman and Gentlemen,

Under instructions from the Director of Agriculture I visited your district in order to judge the plots entered for the Rice competition.

The judging occupied three days from the 6th to 8th instant during this period 61 plots were visited, 17 of which were Upland, and 44 Swamp rice distributed in the following districts.

District	Upland	Swamp	Total
Moruga Road	11	11	22
Princes Town	2	6	8
Iere Village	4	27	31
	17	44	61

The cultivation of each competitor was subjected to as careful examination as possible in the limited time at my disposal and after awarding marks according to the merits of each, I have the honour to recommend that prizes be awarded to the following competitors:—

DISTRICT—MORUGA ROAD.

Uplands			Swamp		
Name	Order	Pts.	Name	Order	Pts.
Nelson Ransome	3	60	Kherodat	1	82
Maud Dickson	1	68	Ragbir Dubé	2	81
Fitzherbert Alleyne	2	67	Romcoowarsing	3	80

DISTRICT—PRINCES TOWN.

Ramjohn	1	93
Gebode	2	66
Chanarbasia	3	64

DISTRICT—IERE VILLAGE.

Name	Order	Pts.	Name	Order	Pts.
Henry Brewster	1	68	Madhoo	1	90
Wallace Douglas	2	82	Wallace Douglas	2	82
Solomon Friday	3	80	Solomon Friday	3	80

I regret that the work of the only two Upland rice competitors in the Princes Town District, and of 3 out of 4 in the Iere Village District, was not of sufficient merit to permit me to recommend the awarding of any prizes in the former and of only one in the latter.

It is to be deplored that the standard of work amongst the Upland rice competitors is inferior to that of last year, this is to be attributed to the low percentage of marks obtained by them for tillage, the advantages of which they do not appear to fully appreciate, only two competitors, the first and second, having obtained more than 50% of the marks allowed for this.

It is worthy of note that a woman has again this year been successful in heading the list of Upland Rice competitors in the Moruga Road District, and although her standard of work falls below that of Susanna Byron, last year's winner, still much credit is due to her as it is on account of the attention paid by her to this important item tillage that her success has been attained.

I cannot refrain from drawing attention to Henry Brewster, an old man of 80 years of age, and the only competitor for Upland rice in his district who has been deemed worthy of a prize. In addition to the care of his cacao and the cultivation of a vegetable garden, he has found time to wrest, by his unaided efforts, the first place from much younger men. It was a very real pleasure to meet this vigorous old man working in his garden, to shake hands with him, and note the intelligent interest and pleasure he took in his work.

Amongst Swamp rice competitors the standard of work is fully equal, if not superior to last year's, in the Iere Village and Moruga Road districts, but the exception of one competitor, the first falls below that standard in the Princes Town district.

Ramjohn who topped the list last year in the Princes Town district has again come first standing out prominently not only in his district, but with one exception, above all other competitors. The features which marked his cultivation, and of which mention was made in last year's report, have been continued, and it was pleasant to note had been improved upon according to the advice then given.

Madhoo who comes first for Swamp rice in the Iere Village district, and is second only to Ramjohn amongst all competitors, also deserves mention for the general excellence of his cultivation, but particularly for the care exercised in building up strong embankments so as to gain efficient control of the water.

A detailed return of the points awarded to each competitor is attached.

I am,

Mr. Chairman and Gentlemen,

Yours faithfully,

(Sgd.) L. A. BRUNTON,

Asst. Supt.

Mr. Jones then read Professor Cunliffe's paper on "Manuring of Provision Crops," the photographs being passed around meanwhile.

The paper was then opened for discussion Mr. Wyatt commented on it, speaking specially about selection of cuttings in regard to Potato Culture. Complaint was made that there was a great shortage of vegetables at the Depot as the season was out. Hope was expressed that within the next few months there would be an influx of provision. Mr. Nunez also commented on the paper and seconded the vote of thanks moved by Mr. Wyatt. It was decided that the paper be published.

Mr. Jones gave the results of his Golconda experiments which went to support the paper and proved very interesting.

After a discussion on local field of yam and potatoe culture the meeting rose.

TRINIDAD MONTHLY PRODUCE REPORT AND STATISTICS.

COMPILED BY EDGAR TRIPP & CO.

Port-of-Spain, 31st May, 1923.

CACAO.—Practically no change has occurred during the month. The market has been very quiet with a limited demand. "Plantation" is still fetching \$9.00, whilst "Middling Red" can be bought at \$8.25.

The small lots of Venezuelan cocoa that have come forward, were sold at the same prices quoted in our last report, i.e. \$9.50 to \$9.75.

SUGAR.—The estates have, with but one exception, brought the harvesting season to a close, and, as anticipated, the crop is much smaller than that of last year.

It is pleasing to note the increase in cultivation, due, chiefly, to the continued advance in prices of Sugar.

MOLASSES.—Shipments amounting to 23,900 gals. have been made to the U.K., but there are still fair stocks on hand for disposal.

COCONUTS.—Shipments to date total 5,449,165 nuts as against 12,352,170 for 1919. The market was quiet throughout the month with prices around \$14 and \$9 per 1,000 for Selects and Culls respectively.

COPRA.—It is interesting to note the continued increase in exportation, shipments to date being 5,224,845 lbs. as against 2,974,498 lbs. for last year.

Planters continue to manufacture as much as possible in consequence of the steady demand and the good prices offering \$4.75.

ASPHALT AND OIL.—Large shipments have again been made as will be noticed from the statistics furnished below.

CACAO.

Shipments of Trinidad Cacao During the Month of May, 1923.

Destination.			Weight in lbs.
To all countries	..	..	7,809,612 ..
Shipped previously	..	..	38,200,715 ..
			<hr/>
Total from 1st January	..	..	46,010,327 ..
			<hr/>
To same date 1922	..	..	27,217,784 ..
" " 1921	..	..	41,481,248 ..
" " 1920	..	..	44,508,096 ..
" " 1919	..	..	31,802,320 ..
" " 1918	..	..	30,222,214 ..
" " 1917	..	..	50,656,992 ..
" " 1916	..	..	32,997,751 ..
" " 1915	..	..	34,924,114 ..
" " 1914	..	..	49,768,480 ..
" " 1913	..	..	33,535,159 ..
" " 1912	..	..	33,106,314 ..
" " 1911	..	..	29,885,529 ..
" " 1910	..	..	32,507,935 ..
" " 1909	..	..	29,618,547 ..
			26,642,915 ..

London Quotations for Ordinary:—

1st May per cwt.	..	..	54/—56/—
16th " " "	..	..	52/—54/—
31st " " "	..	..	52/—54/—

To same date 1922	..	..	69/—70/—
„ „ 1921	..	..	55/—60/—
„ „ 1920	..	..	144/—135/—
„ „ 1919	..	..	90/—121/—
„ „ 1918	..	..	90/—90/—
„ „ 1917	..	..	84/—85/—
„ „ 1916	..	..	89/—87/—
„ „ 1915	..	..	90/—86/—
„ „ 1914	..	..	51/—59/—
„ „ 1913	..	..	71/—70/—
„ „ 1912	..	..	59/6—69/—
„ „ 1911	..	..	55/—
„ „ 1910	..	..	55/—56/—
„ „ 1909	..	..	57/6—58/—

New York Quotations :—

1st May per lb.	..	..	9c.
4th „ „ „	..	..	9¼c.
8th „ „ „	..	..	9c.
14th „ „ „	..	..	8½c.
24th „ „ „	..	..	8⅝c.
29th „ „ „	..	..	9¼c.
31st „ „ „	..	..	9¼c.

At same date 1922	..	..	11¼c.—12c.
„ „ 1921	..	..	8c.—8¼c.
„ „ 1920	..	..	20½c.—19c.
„ „ 1919	..	..	20½c.—25c.
„ „ 1918	..	..	12c —13¾c.
„ „ 1917	..	..	11¾c.—12½c.

SUGAR.

Shipped for the month of May, 1923.

To all countries	..	..	17,011,813	..
Shipped previously	..	..	35,299,056	..
<hr/>				
Total from 1st January	..	..	52,310,869	..
To same date 1922	..	..	73,028,007	..
„ „ 1921	..	..	55,038,275	..
„ „ 1920	..	..	59,812,120.	..
„ „ 1919	..	..	54,458,597	..
„ „ 1918	..	..	43,027,049	..

London Quotations for Demerara Crystals:—

1st May per cwt.	..	..	59/—62/—
2nd „ „ „	..	..	60/—63/—
9th „ „ „	..	..	60/6—63/6
29th „ „ „	..	..	61/6—64/6
31st „ „ „	..	..	61/6—64/6

At same date 1922	..	..	41/—43/6
„ „ 1921	..	..	58/—56/—
„ „ 1920	..	..	111/—150/—
„ „ 1919	..	..	57/9—63/—
„ „ 1918	..	..	57/—
„ „ 1917	..	..	40/1½—43/1½
„ „ 1916	..	..	40/1½—43/1½
„ „ 1915	..	..	25/—28/—
„ „ 1914	..	..	12/—13/—
„ „ 1913	..	..	14/—17/3
„ „ 1912	..	..	19/6—17/6
„ „ 1911	..	..	15/9—14/6
„ „ 1910	..	..	18/6—19/3
„ „ 1909	..	..	14/6—15/3

New York Quotations, Crystals:—

1st May per 100 lbs.	..	8.41
2nd " " " "	..	8.03
3rd " " " "	..	7.70
7th " " " "	..	8.03
8th " " " "	..	8.00
9th " " " "	..	8.06
10th " " " "	..	8.28
14th " " " "	..	8.03
17th " " " "	..	7.78
22nd " " " "	..	8.28
24th " " " "	..	8.20
25th " " " "	..	8.28
29th " " " "	..	8.16
31st " " " "	..	8.16

At same date 1922	..	..	4.11— 4.23
" " 1921	..	..	4.89— 5.06
" " 1920	..	..	19.54—23.57
" " 1919	..	..	6.90
" " 1918	..	..	6.00½
" " 1917	..	..	6.20— 5.95

MOLASSES.

Shipped for the month of May, 1923.

To all countries	..	..	23,900 gals.
Shipped previously	..	..	26,000 "

Total from 1st January 49,900 "

To same date 1922	..	..	74,672 "
" " 1921	..	..	47,128 "
" " 1920	..	..	292,244 "
" " 1919	..	..	84,135 "
" " 1918	..	..	252,600 "

RUM.

Shipped for the month of May, 1923.

To all countries	10,835 gals.
Shipped previously	833 ..

Total from 1st January	11,668 ..
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At same date 1922	1,279 ..
" " 1921	139,317 ..
" " 1920	14,636 ..
" " 1919	749 ..
" " 1918	2,711 ..

COCONUTS.

Shipped for the month of May, 1923.

To all countries	995,440 nuts.
Shipped previously	4,453,725 ..

Total from 1st January	5,449,165 ..
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To same date 1922	7,987,709 ..
" " 1921	8,721,091 ..
" " 1920	10,272,549 ..
" " 1919	12,352,170 ..
" " 1918	9,637,607 ..
" " 1917	..	..	5,894,563 ..
" " 1916	..	..	6,672,810 ..
" " 1915	..	..	2,906,105 ..
" " 1914	..	..	7,328,421 ..
" " 1913	..	..	5,964,637 ..
" " 1912	..	..	7,497,584 ..

COPRA.

Shipped for the month of May, 1923.

To all countries	..	..	1,805,700 lbs.
Shipped previously	..	..	3,419,145 ..
			<hr/>
Total from 1st January	..	..	5,224,845 ..
To same date 1922	..	..	2,974,493 ..
" " 1921	..	..	1,697,490 ..
" " 1920	..	..	958,410 ..
" " 1919	..	..	722,960 ..
" " 1918	..	..	2,522,136 ..
" " 1917	..	..	2,945,025 ..
" " 1916	..	..	1,235,724 ..
" " 1915	..	..	1,911,067 ..
" " 1914	..	..	605,928 ..
" " 1913	..	..	703,966 ..
" " 1912	..	..	867,301 ..

ASPHALT.

Shipped for the month of May, 1923.

To all countries	..	..	16,034 tons.
Shipped previously	..	..	52,171 ..
			<hr/>
Total from 1st January	..	..	68,205 ..
To same date 1922	..	..	54,604 ..
" " 1921	..	..	50,049 ..
" " 1920	..	..	46,581 ..
" " 1919	..	..	23,042 ..
" " 1918	..	..	12,035 ..
" " 1917	..	..	37,925 ..

OIL.

Shipped for the month of May, 1923.

To all Countries	..	..	6,654,988 gals.
Shipped previously	..	..	34,624,429 ,,
<hr/>			
Total from 1st January	..	..	41,279,417 ,,
<hr/>			
To same date 1922	..	..	23,689,187 ,,
„ „ 1921	..	..	14,628,097 ,,
„ „ 1920	..	..	16,321,889 ,,
„ „ 1919	..	..	21,162,494 ,,
„ „ 1918	..	..	14,743,065 ,,
„ „ 1917	..	..	13,382,686 ,,



Rainfall for May, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		ERIN		KING'S BAY TOBAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1	...	21	...	09	...	...	...	...
2	...	50	01	39	...	98	...	25
3	01	39	...	...	...	...
4
5	05	...	...	...	...
6	10	...	...	...	...
7
8
9
10
11	1	07
12	16
13	...	08	...	05	...	...	...	...
14	09	...	...	...	...
15
16	...	31	...	29	...	...	...	03
17	...	37	...	15	...	...	...	02
18	...	02	...	31	...	44	...	43
19	04	...	25	...	...
20	...	18	...	03	...	...	...	...
21	...	42	...	...	...	25	...	07
22	...	32	...	95	...	24	...	...
23	...	13	...	14	...	62	...	...
24	...	06	...	02	...	12	...	...
25	36	...	...	...	...
26
27	...	27	...	...	...	20	...	...
28	...	60	...	...	...	19	...	18
29	...	08	...	32	...	...	...	...
30	21	...	...	...	...
31
TOTAL.	3	50	5	92	3	29	2	16

Note—May,	1922	...	...	...	5	06
" "	1921	...	...	...	2	81
" "	1920	...	...	...	0	16
" "	1919	...	...	...	5	05
" "	1918	...	...	...	7	48
" "	1917	...	...	...	4	14
" "	1916	...	...	...	2	06
" "	1915	...	...	...	5	50
" "	1914	...	...	...	1	85
" "	1913	...	...	...	1	12

Years—Total	1922	(at Lewisville)	...	81	16
" "	1921	...	...	78	79
" "	1920	...	...	59	07
" "	1919	...	...	60	19
" "	1918	...	...	70	58
" "	1917	...	...	73	64
" "	1916	...	...	69	41
" "	1915	...	...	70	57
" "	1914	...	...	54	86
" "	1913	...	...	68	81

OIL.

Shipped for the month of May, 1923.

To all Countries	6,654,988 gals.
Shipped previously	34,624,429 „
<hr/>			
Total from 1st January	41,279,417 „
To same date 1922	23,689,187 „
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Rainfall for May, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		ERIN		KING'S BAY TOBAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1	...	21	...	09	...	...	...	...
2	...	50	01	39	...	98	...	25
3	...	...	01	39	...	...	...	...
4	...	...	...	...	...	...	...	...
5	...	...	...	05	...	...	...	...
6	...	...	...	10	...	...	...	...
7	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...
9	...	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	1	07
12	...	...	...	...	...	...	...	16
13	...	08	...	05	...	...	...	...
14	...	...	...	09	...	...	...	...
15	...	...	...	...	...	...	...	...
16	...	31	...	28	...	...	...	03
17	...	37	...	15	...	...	...	02
18	...	02	...	31	...	44	...	48
19	...	...	...	04	...	25	...	...
20	...	18	...	03	...	...	...	...
21	...	42	...	...	...	25	...	07
22	...	32	...	95	...	24	...	...
23	...	13	...	14	...	62	...	...
24	...	06	...	02	...	12	...	...
25	...	...	...	36	...	...	...	...
26	...	...	...	...	...	...	...	...
27	...	27	...	...	...	20	...	...
28	...	60	...	...	...	19	...	18
29	...	08	...	32	...	...	...	...
30	...	...	...	21	...	...	...	...
31	...	...	...	...	...	...	...	...
TOTAL.	3	50	5	92	3	29	2	16
Note—May,			1922	...	...	...	5	.06
" "			1921	...	...	...	2	.81
" "			1920	...	...	...	0	.16
" "			1919	...	...	...	5	.05
" "			1918	...	...	...	7	.48
" "			1917	...	...	...	4	.14
" "			1916	...	...	...	2	.06
" "			1915	...	...	...	5	.50
" "			1914	...	...	...	1	.85
" "			1913	...	...	...	1	.12
Years—Total			1922	(at Lewisville)	...	...	81	.16
" "			1921	...	...	...	78	.79
" "			1920	59	.07
" "			1919	60	.19
" "			1918	70	.58
" "			1917	72	.64
" "			1916	69	.41
" "			1915	70	.57
" "			1914	54	.86
" "			1913	68	.81

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- C. Glaudon.
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- G. N. Waleott.
- Adopted at a meeting of the
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- R. S. Reid.
- Report of Joint Executive
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- Mr. W. G. Freeman, B.Sc.
- Dr. Geo. Masson.
- Report by Sec. submitted to
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- F. W. Urlich.
- J. Birch Rorer.
- Mr. W. G. Freeman, B.Sc.
- F. E. Olivieri
- W. E. Broadway
- E. Gransaul.
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- E. Radcliffe Clarke
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- | | |
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From time immemorial ants have always attracted attention and can be studied from many points of view, to-day we shall consider them in relation to our three major crops; cacao, sugar-cane and coconuts.

LIFE HISTORY.

Ants belong to the large order of insects comprising bees and wasps and undergo a complete metamorphosis which means that they have to pass through three stages of development before becoming adults. These stages are egg, larva and pupa. As a rule they live in communities like bees and have one or several queens or females which are very prolific and produce large numbers of eggs. In the communities the ants have a highly developed social life with an admirable division of labour. Queens found colonies all alone but as the family increases they are helped by their progeny consisting of aborted females called workers. As time goes on the queens do nothing else but egg-laying and the care of the young brood devolves on the workers of which there are a varying number of grades according to the species of ant. The Bachacks (*Atta cephalotes*) for instance can have as many as a dozen different sized workers. The smallest workers act as nurses in the nest, the next larger sizes forage for leaves and the largest, commonly called soldiers, attend to the defence of the community. At certain times of the year winged sexual ants are produced in the nest and at the opening of the rainy season they swarm out, mate in the air and then disperse. As soon as the female finds herself on the ground again she casts off her wings and starts a new colony. Queen ants can live a very long time even extending to many years. A Parasol ant queen (*Acromyrmex octospinosus*) was kept in captivity under very restricted conditions of a small artificial nest in a laboratory for seven years, during which period she produced thousands of workers.

NESTS.

Ants build great varieties of nests and each family has its own peculiar style of nest. The hunting ants

(*Ecton*) have no permanent nests and their temporary abodes do not remain very long in the same place. The Ponerine ants of which the Tack Tack (*Odontomachus heamatoda*) is the best known example nest in the ground, under stones, and in rotten wood but as many of them are solitary the nests are never extensive. The nests of *Pseudomyrmac*, many of the *Myrmicinae*, the *Dolichoderinae* and the *Formicinae* in fact the majority of ant nests in Trinidad are to be found on trees, either under loose bark, in deserted tunnels of wood boring insects, in cavities either excavated or natural in stems or branches, in hollow twigs either dry or living, in old cacao pods, in suspended earthen or carton nests, on growing leaves stuck together with carton etc. The fungus growing ants, the *Attini* especially make extensive nests in the ground, many of which if left undisturbed can cover surfaces measuring several hundred square yards and become landmarks in a district. I have known Bachack nests in the woods for the last 10 and 20 years and they are still thriving today. The stinking ant (*Dolichoderus bidens*) seems to prefer to make use of cavities in tree trunks and among wild pines on trees. It is often found nesting in termite nests and the question whether the ants destroy the termites before taking possession of their nests has not yet been solved.

STINGS AND POISON.

Great interest is always manifested in the stinging propensities of ants and it is generally thought that all ants have stings. Ponerine ants have long stings and powerful poison but most other ants of Trinidad have small or no stings at all. Many have poison glands which cause pain when they come into contact with the skin. The Balata ants (*Azteca*) have in lieu of poison a secretion which is not only sticky but has an aromatic odour as well. The stinking ant exudes a nauseating odour, while the secretions of some hunting ants have a distinct faecal odour.

USEFULNESS OF ANTS.

Most ants are useful to Agriculture by destroying leaf eating and wood boring insects in all stages; some useful species of ants also prey on their injurious companions. The wood boring ants help to disintegrate trunks of fallen trees and so make them available for plant food. Many also feed on dead animals of all kinds and so hasten their decay, ants are also of use to plants in connection with the pollination of flowers; they have already been mentioned in connection with cacao flowers and it is likely that they help the coconut flowers also.

HARMFULNESS OF ANTS.

Ants are injurious to our cultivation by cutting the leaves of trees, like the Bachacks and Parasol ants others do more harm indirectly by fostering and protecting plant lice, scale insects, pod hoppers and other sucking insects for the sake of their secretions which they gather. By themselves these sucking insects drain the trees of sap but under stimulation by the ants they take far more than they require and so the plants suffer more. Some ants destroy the seeds of plants.

NATURAL CONTROL OF ANTS.

Ants serve as food to mammals, birds and a great many reptiles and amphibians. Recently a four toed ant eater, (Mataperro locally) was killed at Maraval not very far from the St. Clair Experiment Station. The contents of its stomach weighed 10 ounces and consisted of four species of ants and one species of termites. Among the ants there were Parasol ants and two species of carpenter ants, both of which are connected with the little leaf disease of coconuts. Professor Wheeler found that the stomach of a four toed ant eater killed in British Guiana contained no less than fourteen species of ants.

When ants swarm in the rainy season they are destroyed wholesale by numerous predaceous enemies such as birds and bats while in the air and by lizards, toads and frogs when they fall to earth. Many are also swept out to sea and are drowned.

Ants are also destroyed by fungous parasites. Carpenter ants are largely affected by a *Cordyceps* which at times is quite common in the fields.

ARTIFICIAL CONTROL.

In connection with the destruction of ants, the following passage from Professor Wheeler's classic work on ants should be carefully borne in mind.

"Ants offer strong resistance to all measures for their extermination owing to the tenacity with which they cling to their nesting sites, their enormous fertility and the restriction of the reproductive functions to one or a few queens that are able to resist destruction by living in the inaccessible penetralia of their nest."

Formulae for preparing mixtures for killing ants will be found in the Fruit Pamphlet issued by this Society, but remember well that the nests and queens are to be the main objects of attention.

CACAO FIELDS.

The felling of forests for the formation of cacao estates has deprived many species of ants of their natural habitats but they have adapted themselves to the conditions existing on cacao estates by continuing their activities on the cacao trees and on the ground beneath them. It is highly probable that most of the ants of the Island can live on cacao estates.

Of all ground inhabiting species there is no doubt that the Bachack is the most injurious and the harm it does is so well known that I hardly need refer to it. There is, however, one phase in connection with the control of this ant that deserves attention and it is the right season for the destruction of nests. Large nests should always be attended to before the rains commence so as to prevent the swarming and dispersal of gravid females. These ants manifest great activity in rearing winged forms of both sexes about three or four months before the heavy rains sets in. On cacao estates the Parasol ant is not so formidable a pest as it is in gardens about houses,

ants of which the tack tack is the best known are fairly well represented and they prey on caterpillars, weevils, frog-hoppers and other insects.

The stinging ant is always associated with the pink mealy bug. It will protect the mealy bugs by building shelters over them so as to feed on the sweet liquid secreted by the bugs. Fields harbouring many stinging ants are always sure to be infected by mealy bugs. A small reddish yellow hunting ant has been observed in cane fields where it forages more under ground than above. These ants pillage nests of stinging ants so that in this case they do some good although they no doubt destroy some useful insects as well. Cane fields do not harbour as many ants as cacao and coconut estates.

COCONUT FIELDS.

Coconut estates have various Ponerine ants doing good work in destroying insects on the ground and on low growing shrubs under the palms. The tree inhabiting species of *Azteca* generally called "Balata ants" here are capable of being injurious by encouraging and protecting several species of scale insects. In the Cedros district the Balata ants found in connection with the coconut scale make their nests in the numerous cutlass chops generally found on the stems of coconut palms. From these shelters the ants ascend the palms and visit the scale insects on the leaves. Cutting out the nests and tarring or painting them with crude oil have controlled the ants and the scale insects have diminished. At Mayaro the Balata ant doing the same kind of damage makes nests of a carton consisting of earth and wood fibres placed on the stems of the palms or on the fronds. Balata ants seemed confined to Cedros and Mayaro. Among other species of ants found in all the coconut districts of the island are those belonging to the genus *Campanotus* commonly called Carpenter Ants. Whether the Carpenter ants are solely responsible or not for the little leaf disease of coconuts the fact remains that they are usually found in

connection with this disease and when they are destroyed the palm recovers. Mealy bugs are generally found associated with the ants and are protected by them: it would not be easy to say which was first, but at any rate from the gnawing propensities of the ants and the sucking of the sap by the scale insects the tender young leaves of the growing point are damaged and dwarfed. The Carpenter ants which have more or less nocturnal habits visit coconut flowers and it is possible that they may also be of use to the tree. The Bachack is rarely found on coconut estates, but the Parasol ant or "pot ant" of Tobago is fairly common and it has been observed carrying male flowers to its nest.

In conclusion I may say that with the exception of the Bachack and Parasol ants none of the ants found on cacao, coconut, and cane estates can be called serious pests, but some of the species inhabiting cacao trees such as the Balata ants should always be kept under observation and should not be allowed to spread in fields.

The Carpenter ants on coconut estates should not be neglected either.

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(SOCIETY PAPER No. 756.)

PIG REARING.

BY CAPTAIN METIVIER, B.Sc., M.R.C.V.S.

*Read at a Meeting of the Savana Grande District
Agricultural Society on the 5th June, 1923.*

It is not intended to advise you in this paper to abandon your main agricultural work and to become pig farmers on a large scale but you are recommended to take on the rearing of a few pigs as an additional occupation; this will only need a limited but regular amount of your time, and in return it will repay you handsomely.

Swine rearing has for many decades been a very important occupation in practically all civilised countries

and there are recognized advantages which pig rearing offer to the exclusion of all other kinds of live stock farming for the following reasons:—

- (1) It requires comparatively a small amount of capital for foundation stock, necessary equipment, etc., and it is comparatively easy to get out of the business without much if any financial loss ; these remarks refer specially to a large pig farm but in your case the advantages would be even more marked, because you can have the assistance of the Government in supplying you with suitable boars in your district through the Agricultural Advisor.
- (2) No other kind of live stock farming offers such quick returns as does pig rearing. This is due to the early age at which pigs will reproduce, a young sow should ordinarily have her first litter at about 15 to 16 months of age.
- (3) Pigs are very prolific producing five to fifteen pigs per litter depending upon the breed.
- (4) Pigs are very fecund producing two litters within a year under proper management.
- (5) Pigs will utilize most profitably the otherwise wasted kitchen and garden food products; special feeds such as damaged sweet potatoes, inferior qualities of flour, bran, oats, maize, etc., can all be consumed by the pig.

Over and above all these main advantages it must be added that in this Colony we are free from that dreadful contagious disease known as Swine Fever and most other swine diseases, and secondly a ready market exists in this Colony for pigs. At the Abattoir in Port-of-Spain the number of pigs slaughtered per month is 600 and the number of pigs imported into this Colony from the other West Indian Islands (St. Vincent, Grenada and Carriacou) and the mainland of Venezuela averages over 300 per month.

In many parts of the world the pig has earned the name as the 'small holders' friend and the 'mortgage lifter' because it is the most economical machine for converting the ordinary available feeding stuff into edible meat and meat products. Try and convince yourself and your neighbours that pig farming is worth while because whatever your chief occupation may be, there will be always some kitchen garbage, fruit waste, spoiled grain and other offal that can be converted into safe pig feed and thus return handsome profits.

The pig cannot be expected to do his best if treated as a scavenger ; indeed it is astonishing how the pig will flourish in the absence of proper care provided there is enough to eat, and probably this is the reason why this animal is so shamefully neglected by many owners from the point of view of its surroundings, which are only too often indescribably filthy. The pig is not naturally a dirty animal anymore than a cow and there is not the slightest reason why the same attention should not be paid to the surroundings of this animal as is insisted upon in the case of the other domesticated animals. He has set habits as he always sleeps in the driest part of the sty and he always excretes and urinates in another corner provided space is available.

These omnivorous animals have a pedigree in history which can be traced back to 5,000 years ago where it was recorded in Chinese history, in fact it is one of the things which we owe to that country. The European pig more than resembles the Wild Boar from which it takes its origin and there is no doubt that both the Chinese variety and the European sprang originally from the Wild Boar which possesses a geographical distribution as wide as Europe, Asia, and Northern Africa. The modern variety as we see it now-a-days occurs usually in one of three types namely black, white and red or chocolate coloured. It is customary to divide the breeds into two main classes e.g. Lard Type and Bacon Type. In the Lard type we have such pigs as Berkshires, Poland Chinas, Duroc Jerseys, Chester Whites. The bacon hogs

are the Hampshires, Tamworths, and Large Yorkshires. To these must be added the Large Black Pig which has now come on by leaps and bounds in tropical countries and has earned the name of a dual purpose hog. Many breeders do not consider it necessary to use pure bred sows in the production of the market hog, however there seems to be no question among them but that pure bred boars should be used. The grade sow and the pure bred boar for the production of market pigs are especially favoured by the breeders who are limited as to capital. It is also the usual procedure with beginners in the industry. It must be stated however that there are splendid opportunities for those interested in swine production to raise pure bred hogs, because the producer of the pure bred has always two outlets for his animals as they may be disposed of for breeding stock or for pork. The Scrub hog, that is the razor back, is always responsible for extensive losses on many holdings because such animals consume more food in proportion to the weight gained than pure bred pigs. The difference in their amount of feed required to finish off the scrub pigs and pure bred ones makes a good profit in favour of the pure bred. It can be generally stated that the only man who will lose in pig rearing is the one who continues to breed from the mongrel razor back boar and never attempts to use the pure bred.

For our ordinary mixed blooded sows that are invariably narrow in the back, weak in the loins and light in the ham no more uniformly good results could be expected than have been obtained from the use of a good thrifty Berkshire boar. Continue to use this breed of boar for two or three generations and always practise the most rigid selection among your brood sows. Another good type of pure bred boar is the Large Black and breeders of this type of pig are advocating its use on a large scale in all tropical countries. The selection of breed however will be a matter of choice and some breeders claim that the Tamworth will give just as good results with the ordinary common sow as the Berkshire

or the Large Black. It can be recorded however that both the Tamworth and the Yorkshire do not give in this Colony such good results, and especially is this the case with the Yorkshire, because they seem to be so susceptible to swine ailments such as sunscald under our climatic conditions. In fairness to other breeds however it must be stated that Berkshire sows are ordinarily considered neither prolific, good milkers, nor the quietest of mothers so if one intends to breed pure crosses such as Berkshire—Tamworth or Berkshire—Large Black, it is always best to use a Berkshire Boar with a pure bred sow of the corresponding breed. Indeed such crosses give splendid pigs but no matter how good the young cross bred sows or boars happen to be they should not be kept for breeding purposes, because they are likely to produce anything from an excessively fat and dumpy pig to an excessively lean and lanky type of individual no matter what the original cross was. It is better therefore to resort to grading than to cross breeding. The Poland China pig, which as a rule matures at a very early age and is a very heavy type, has been used in this colony with fairly good results. Sows of this breed are very prolific and it is claimed by many that grade Poland China sows are most suitable for the small holder as they have excellent feeding qualities, mature early and are very prolific.

In-breeding is a question on which the specialist is frequently consulted. In-breeding once removed is permissible but continuous inbreeding is usually risky as weakly deformed pigs are likely to result.

Line breeding is the mating of related animals that have descended from the same common ancestors. Thus the defect of inbreeding may also appear in line breeding but by careful selection of the individual, line breeding has been found to be of value in emphasising the good points of a particular strain of any kind of pigs.

Cross breeding is the mating of pure bred animals of different breeds. This breeding produces a thrifty and

usually hardy type with the first cross but when continued further the progeny degenerates to uncertain types, a large number being scrubs.

Grade breeding is the mating of pure bred boar with grade sows. If grade breeding is continued long enough you will eventually get a pure bred herd but the only objection to this is the length of time it requires to do so.

THE BROOD SOW.

The general appearance should be strongly feminine, the udder should be well formed and provided with ten or twelve teats distinctly defined, which should be well apart and extend forward and backward. Most experienced breeders claim that sows from mature animals are the best breeders and the most prolific age in sows is about three and a half to four and a half years. In some parts of the world a young sow is bred once and then fattened off for the market as it is claimed that they can now put on considerable flesh but it would really be more profitable if these breeders would select from these young sows those that are prolific and good breeders and keep them for breeding until they are at least five years of age rather than trust to the single breeding. The young sow should not be bred until she is ten months of age and it is really best to breed her as a yearling. The period of oestrus or heat occurs in a sow every 21 days until she has proved and it is usually recognized by the vulva becoming rather swollen. The absence of the period of oestrus is the first sign of pregnancy and six weeks after conception there is an apparent fulness in the flank. The period of gestation is three months three weeks and three days. Don't worry about moons just remember it in the way it has been described and you will never forget it. The dates for farrowing should be carefully considered and will vary according to whether the breeder is desirous of having one litter per year or two. With proper care two can easily be arranged and of course it is far more profitable. A sow can easily give you two litters with a period of six months between each. It is advisable to arrange for your sows to farrow

at the same time as this economizes labour in the care of the young pigs. The sows must be isolated for farrowing and clean quarters must be provided, the farrowing pen must be comfortably bedded but heavy bedding is certainly not required especially if the grass is long, because in this way the young pigs will become entangled and consequently get crushed. Sows at the farrowing period should have a change in their diet and it is customary to feed laxative food which is rich in mineral matter. Bran at this time is excellent or pollard if it is available. Corn or corn meal or even oil meal are contra indicated because of their heating qualities and sows that are heated or feverish at the time of farrowing usually eat their young. Experiments have proved that several such animals when care is paid to their feeding before farrowing stop this habit, but in many the vice still remains in spite of all care and it is then advisable to fatten off such a sow for the market.

The age of mating animals is also of considerable interest, generally speaking it can be claimed that best results are obtained from mature animals of about the same age. Young sows as a rule when mated with aged boars generally give a certain amount of difficulty at parturition and the pigs from the young boar and an old sow are not as strong as the pigs obtained from such a sow with an old boar. It is really unwise to use a boar before he is twelve months old unless he happens to be extremely well developed, and as to the length of time for keeping both sows and boars for breeding purposes it can be stated that after five to six years old they give less profitable results. There is another type of sow which requires our attention and that is the animal that is bred with considerable difficulty refusing to take the boar at the heat period. This type of sow causes a severe drain on the vitality of the boar and as a breeding proposition is of absolutely no value. Some boars and especially the pure bred imported ones are sometimes too heavy to serve small local sows, but this difficulty can be overcome by the use of a breeding crate. We are using one

at the Government Farm and it can be inspected at the piggery there. The smallest sow with this structure can be served by the largest boar.

Regular exercise is of the utmost importance for sows especially during their gestation period. And unsatisfactory results are frequently attributed to a lack of proper exercise. The sow's sty should be fairly roomy about 8 feet by 10 feet and there should be an uncovered portion about half this size which is suitable for feeding. The roof should be made of tarred felting but when galvanized iron is used it should be as high as possible. A sty of this size can accommodate a sow and 12 young ones.

The difference between dry and wet floors is the difference between healthy and sickly pigs. In addition to being formed of materials impervious to moisture the floor should be well laid so that water cannot collect in pools. A floor made of permeable and absorbent material such as earthen floors or wooden ones becomes soaked with urine and are as a rule insanitary and damp and contribute considerably towards causing the pigs to suffer from parasites such as worms. A satisfactory and inexpensive flooring consists of three and a half inches of concrete resting on six inches of hard core (broken bricks well rammed); this concrete can then have a layer of one in three cement mortar about half an inch thick which can be roughened by brushing over with a stiff broom before it dries.

A stout farrowing rail should be run around three sides of the covered portion of one of the stys which should be reserved as a farrowing pen. The rail should be nine inches from the floor and nine inches from the wall. This will prevent the sow from lying on her young pigs, a common occurrence with sows that are clumsy and restless.

BOAR.

An animal with big bone and well developed for his age should always be selected. No definite age can be

stated at which a young boar would be fit for service. As a rule they can be use at ten months of age but then they should be used sparingly until they are fifteen months old. The young boar can be used every second or third day but the mature boar can serve two sows in a day—one in the morning and one in the afternoon, but it is best to limit him to half a dozen sows per week. It should always be remembered that mature boars produce better pigs, so do not overdo your boars when they are young. It is not advisable to let your boar run with the sow as he will waste himself; one service is sufficient for each sow and it is a most silly idea to believe that the more services the more pigs. A sty of the same dimension as that recommended for the brood sow would suit the boar and he must also have the open portion or yard for his feeding compartment. It is customary to have a small run or paddock in which he can be exercised but during the week that he is being used to the utmost exercise is not essential for an appreciable amount of his energies is spent in actual service. Neither a very fat or a very thin condition of the boar is required in fact extremes are to be avoided. The happy medium is desirable, that is an animal in fairly good condition and at the same time a vigorous and active boar. Corn or corn meal is really too fattening and should not be used alone. A mixture of one-third corn meal, one-third pollard or bran and one-third coconut meal is very useful.

WEANLINGS.

At the age of 21 days the little pigs will begin to nimble at the dam's feed and it is now time to provide extra feed for them. Some breeders prefer to supplement the sow's ration, but this may lead to the animal overfeeding herself. It is now recognized that in providing a creep through which only the little pigs can pass, these animals can have this extra ration in a small trough of their own. Both bran and pollard mixed with water into a thin sloppy mash are serviceable feeds for those young pigs. The two extremes of weaning time are at five and at twelve weeks old, but the majority of:

breeders favour the age six to eight weeks depending upon the development of the pigs and the condition of the sow. If the pig are weaned later than eight weeks old it will be impossible to obtain two litters per year. It is better to make the weaning decisive than to allow the pigs to be removed gradually, turning in them to their mothers now and again until she is dry. The most satisfactory feed for weanlings is milk and grain and this can be fed in proportion one of grain to three of milk, however in the absence of milk a thin slop can be made from four parts of pollard, flour or bran, five parts of cornmeal and one part of oil meal. For the first week after weaning feed the animals four times daily after this they can be fed three times a day. At about three months old they can be treated like the older pigs and fed in the morning and in the afternoon. The trough should be kept clean and they should always have access to clean water. These pigs should be given plenty of exercise and this is best provided by turning them into a pasture where they can get some grazing as well.

FEEDING.

The preparation of foodstuff for swine is worthy of consideration; all forms of grain are better fed as meal and the value of soaked feed is a disputed one. It is doubtful whether soaked feed has any superior quality to the original dry feed and there are many objections to the soaking of feed. Potatoes and other root crops are better feed when cooked as they are then more palatable. There is no animal that is so susceptible to salt poisoning as the pig and it is therefore advisable to never add salt to your feed, further brine and corned meat should never be fed to pigs. Bran, pollard, corn meal, pea meal (cow pea meal was fed at Government Farm with good results last year) inferior qualities of flour, coconut meal and oil meal are all valuable feeds. A mixture of one-third bran, one third cornmeal and one-third coconut meal is excellent. To this must be added about one-twentieth part of tankage or meat meal and at times blood meal is substituted

for tankage, but less must be given as it is more concentrated. Both these meals are extremely rich in digestible protein. In the case where root crops are fed it is necessary to allow six pounds of roots for every pound of grain. Feed your pigs regularly and do not feed more than the pigs will clean up within twenty minutes after feeding. Gorging them one day and starving them on the next will only lead to bad results such as constipation and diarrhoea.

Clean water is most essential and during hot days they should have it twice daily. There should always be a small trough containing mineral food for the pigs in their sty and the best preparation to use is made up as follows:—

24 lbs. of wood charcoal.

8 lbs. of ashes.

1 lb. of coarse salt.

1 lb. of air slaked lime.

This is powdered and mixed thoroughly.

A quarter pound of blue stone is dissolved in a large bottle of boiling water and this is added to the mixture stirring well all the time. This mixture gives most encouraging results and should never be mixed with the ordinary feed but left in the trough where the pigs can help themselves as they like.

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(SOCIETY PAPER No. 797.)

THE DISPOSAL OF BLACK PODS AND CACAO HUSKS.

BY MR. WM. NOWELL, ASSISTANT DIRECTOR OF
AGRICULTURE.

Read at a Meeting of the Society on the 14th June, 1923.

This item was placed on the Agenda as the result of a request to the Director of Agriculture from Mr. Henry Warner for an opinion on his methods of dealing with

black cacao pods and with cacao husks in general. It may be remembered that Mr. Warner was to have read a short paper on this subject at the meeting of 8th February this year but was unable to carry out his purpose. Pod rot of cacao was very prevalent towards the end of 1922 owing to the occurrence of abnormally wet weather. In my lecture on diseases of cacao delivered in May, 1922, it was pointed out that the best means of preventing losses from pod rot are to be found in drainage and reduction of shade, including under the latter phrase the general opening up of the cultivation to secure the maximum access of air and sun consistent with adequate protection of the trees against wind and drought.

Mr. Warner's questions however have reference to cacao fields in which the disease is actually prevalent. The measures possible under these circumstances are determined more by considerations of estate economy than of mycology. The freshly diseased pods as they hang upon the tree and for some time after they are picked are giving rise more or less continuously to the spores of the fungus parasite to which they are due, and theoretically therefore should be removed and destroyed as soon as they can be detected. Such a course is not feasible under estate conditions and it depends a good deal on individual circumstances what degree of approximation to it can be reached.

Mr. Warner in making the request to which I have referred outlines his own practice as follows:—

- 1st—I have the best man I can get to cut these black pods (with picking gang or before if convenient) with shears or sharp poinard.
- 2nd—Where the disease has gone into the tree (or apparently come from the tree) the diseased tissue of the tree is cut out at the same time.
- 3rd—The knife is disinfected at once and the cut is covered with strong whitewash containing a little blue-stone.

4th—The diseased pods are collected and subsequently buried as soon as possible in a hole two feet deep with temper lime above and below. As fast as they are collected lime is put over them and they are covered until the holes are dug."

With some minor differences of detail which I shall indicate in a moment this system may be regarded as meeting the needs of the case. I only wish that I could think that it will be to any large extent adopted. In approving of the cutting out of diseased tissues I do not mean the gouging of the wood that has been sometimes practiced but only the removal of the outer bark over the infected area. As a dressing for the wood I should prefer the use of Bordeaux or Bungundy paste rather than ordinary whitewash. A 5 to 10 per cent. solution of such a disinfectant as Jeyes Fluid would be simpler and probably at least equally serviceable. It would also serve for the disinfection of the knife. As the use of temper lime indicated may deter some people I would add that to bury the pods without lime is much better than to leave them lying about in heaps as one frequently sees them.

So far as I can judge the greatest amount of harm arises from the custom just referred to of picking sound and diseased pods separately and leaving the latter perhaps several days until the former are disposed of. To this practice appears to be due the heavy prevalence of pod rot and canker near the spots used for breaking the pods.

With regard to the disposal of the ordinary cacao shells my opinion is that burial in pits or trenches, without necessarily using lime, is quite adequate. In level field a fresh place can be chosen each time so that the manurial effect is distributed. A method suitable for fields in which the pods have to be broken always at the same spots is to rot down the shells in pits with earth and lime, and then apply the compost so formed as manure. So far as I know there is not, from a mycological

point of view, any very definite objection to the use of the shells of healthy pods as a direct mulch. With any admixture of black pods however, I should regard that as a risky proceeding.

Bordeaux paste is prepared by dissolving 1 lb. of copper sulphate in 1 gallon of water, slaking 2lb. of lime in a second gallon and when the latter has cooled mixing the two together. A creamy compound is obtained which can be used like paint or whitewash. The addition of 1 pint of milk or 4oz. sugar improves its keeping qualities. Washing soda ($2\frac{1}{2}$ lb.) may be substituted for the lime.)

It should be added that while the measures outlined may be expected to reduce infections with pod rot and canker to a minimum under ordinary conditions, I do not regard them as adequate for the control of serious epidemics due to continued wet weather such as reduced the crop to a half or less in some districts last year. The only measure of which I can conceive as meeting a situation of that kind is prompt and complete spraying of the threatened fields, which could hardly be carried out quickly enough without the use of a power sprayer of some description.

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GENERAL MEETING.

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Minutes of the General Meeting held in the Council Chamber on Thursday, 14th June, 1923 at 1.30 p.m.

Present.—W. S. E. Barnardo, President in the Chair. Sir Francis Watts, Principal of Agricultural College, Rev. H. H. Morton, Captain Gooden Chisholm, Messrs. W. G. Freeman, Director of Agriculture, Wm. Howell, Assistant Director of Agriculture, F. W. Urich, Entomologist, A. G. Bailey, Economic Botanist, J. Lickfold, A. de Boehmler, J. Black, F. Le Blanc, C. P. Rojas, J. Mungal, C. Fleming, E. A. Robinson, E. Radcliffe Clarke, S. Medford, A. Cory Davies, A. A. Sobrian, H. W. Brathwaite, J. Knox, M. Martinez, P. A. T. O'Connor, G. C. Wyatt, A. V. Stollmeyer, Lieut. Col. Collens, A' F. Clarke,

Captain A. A. Cipriani, C. A. Palmer-Chizzola, J. L. Wilson-Goodie, Trade Commissioner and L. de Verteuil, Secretary.

Minutes.—The Minutes of the Meeting of 10th May were confirmed.

Diploma of Merit.—In presenting a Diploma of Merit to Mr. Ramcoowarsingh, for the excellent work done by him during the last growing Season, the President said that he had excelled in all phases of his cultivation and obtained 100% of the marks in the last Vegetable Prize Competition in the Savana Grande District. This was the third year in succession that he had obtained the first prize, showing great perseverance in his work.

Election of a New Member.—Mr. C. M. Samlalsing, Proprietor, was elected Member of the Society.

Correspondence.—The Secretary read letters received from the General Secretary of the British Empire Producers' Organisation and from Mr. H. Hamel Smith relating to the Cacao and Sugar Cane Industries.—On the motion of Mr. C. Fleming seconded by Mr. E. A. Robinson, these letters were referred to the Cacao and Sugar Committees and the Secretary was instructed to have them printed in the "Proceedings."

Disposal of Cacao Husks and Black Pods.—Mr. Wm. Howell, Assistant Director of Agriculture read some notes on the subject. These notes will be published in the "Proceedings" of the month of June, for general information.

Ants in relation to Agriculture.—Mr. F. W. Urich, Entomologist of the Department of Agriculture read a paper on the above subject which will be published in the Proceedings for June.

A vote of thanks to Messrs Nowell and Urich was moved by the President, seconded by Mr. E. Radcliffe Clarke and carried.

Agricultural Bank.—Captain A. A. Cipriani moved:

“That in the opinion of this Society, the attention of the Secretary of State for the Colonies should be again directed to the present financial depression and the distressing condition of the Cacao Planters of the Colony with the resultant threatened extinction of the entire Industry and the consequent unemployment of the Labouring Classes, with a view to steps being taken to afford the only possible relief by the establishment of the Agricultural Loan Bank as recommended by the Local Government and that a deputation be appointed to present to His Excellency the Governor this resolution with the request that it be forwarded to His Grace the Duke of Devonshire, K.G., C.B., Secretary of State for the Colonies, for his further and favourable consideration.”

He gave a short account of the parts taken by the Chamber of Commerce and the Agricultural Society in their recommendations for the establishment of an Agricultural Bank in the Colony and how the Workingmen's Association had organized a campaign throughout the Country Districts, to support the movement. He referred to the numerous signed petition presented by the Workingmen's Association, to His Excellency the Governor, at an interview he had given them and which was to be transmitted to the Secretary of State for the Colonies. He also quoted the cables sent to the Secretary of State by the Governor and the answer received and how His Excellency gave the assurance that so long as nothing better was brought to replace the aid to Agriculture by the Relief Ordinance it would continue and that the undertaking given by His Excellency has been carried out to its full—He said that the Workingmen's Association feeling that the matter wanted further representation had decided to send a Delegate to discuss it with the Secretary of State and he was of opinion, that the scheme put forward by the Government for an Agricultural Loan

Bank, was the only thing to raise the Colony and its people from the crisis which threatens the Cacao Industry.

Mr. C. P. Rojas seconded and believed in the scheme of the Government for the establishment of an Agricultural Bank.

At this stage of the Meeting, there were frequent interruptions, and questions were asked as to what constituted the Government's scheme—The President appealed for order.

After the President had read extracts from Council Paper No. 104 of 1922, relating to the Government's scheme, Messrs. Wyatt, Mungal and Rev. H. Morton spoke in favour of the scheme and pleaded for an amicable settlement of the difficulties.

Mr. E. A. Robinson, said that when the question of an Agricultural Bank was first discussed, he made it quite clear that he would never support any but an Agricultural Bank to advance money against crops. He thought the scheme as proposed, would run the debt of the Colony into millions. He was opposed to a Bank, established for the purpose of taking over mortgages—He also devoted some time to show what it costs to produce a bag of Cacao, and the low yield obtained from 1,000 Cacao trees, on the majority of the Estates in the Island and the great risks the Government would be running by taking mortgages on estates so much depreciated in value at the present time.

As it was near 4 p.m. the President adjourned the debate to the next regular meeting.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

COMMITTEE MEETING.

Minutes of the Meeting of the Committee of Management, held in the Council Chamber on 10th May, 1923, at 10 a.m.

Present :—W. S. E. Barnardo, in the Chair, Messrs. J. Black, S. Medford, A. A. Sobrian, C. P. Rojas, E. Radcliffe Clarke, Revd. H. Morton, J. Lickfold and L. de Verteuil, Secretary.

Minutes :—The Minutes of the Meeting of 8th March were confirmed.

Quarterly Account :—The Quarterly Accounts to 31. 3. 23. were circulated among the Members of the Committee of Management. After having been approved they were ordered for Audit.

Expenditure\$1,784.64

Balance at Colonial Bank current acct... \$ 1,526.47

Balance at Colonial Bank savings acct.. . . 1,286.88

Balance to credit .. \$ 2,813.35

This includes \$720 paid by the Receiver General for the quarter ending 30. 6. 23.

Letter from Mr. Fred Herrera :—A letter from Mr. Fred Herrera, that had been referred to the Committee was read. It was in connection with a special prize of 20 guineas Canteen offered by Messrs. Day, Son & Hewitt Ltd. for the best conditioned milch cow in the Island, to be competed for at a Central Show. The Secretary was directed to answer that under the present depressed financial condition of the Colony it was not possible to hold a Central Show in the near future. It was left to Mr. Herrera, to hold back, the valuable prize offered, until such time as the Committee may find it advisable to recommend the holding of a Central Show of Milch Cows.

Fruit Pamphlets :—The Secretary read a letter from Mr. A. R. Yuille, enclosing a bill for \$650.00 for publishing 1,500 copies of the Pamphlet on the Fruit

Cultivation. He stated the reasons that had caused the cost to be higher than at first estimated. The matter was referred to Messrs. R. S. Cunliffe, R. O. Williams and the Secretary, who, after looking carefully into the matter, decided to apply to Messrs. Yuille for a reduction. A discount of 5% was allowed and the cost was reduced to \$617.50.

Letter from Mr. Harold Hamel-Smith :—A letter was received from Mr. Hamel-Smith dated 15th February, 1923, by which, he accepts to be co-opted a Member to represent the Cacao Industry in the Council of the British Empire Producers' Organization. He mentions, that the question of expenses would have to be considered if ever his services were required outside London. So far as he can judge, however, the meetings will all be in London and there will be no expenses unless reports are asked for. The Committee were of opinion that this should be accepted.

L. DE VERTEUIL.

Secretary.

Confirmed.

W. S. E. BARNARDO,

President.

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REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

NAPARIMA.

The regular monthly meeting of the above named Society was held in the Town Hall, San Fernando, on the 15th January, at 4.20 p.m.

Present :—Messrs. J. C. Augustus, Vice-Chairman; Rev. Canon W. S. Doorly, Rev. C. J. Errey, Messrs. W. W. Bonyun, A. A. Sobrian, H. Slint, R. M. Scott, E. Donglin, Jas. Mungrah, C. S. Sanowar, A. Gidharry, D. Chadee, H. Dee, J. H. Sookhbir, F. Lewis, J. Wickham, A. Ogirally,

Ramsoomuj, Persad, J. E. Thornhill, H. Gordon, Asst. Hon. Secretary, and A. E. Lakham, Hon. Secretary.

Minutes :—The Minutes of the last Meeting were read and confirmed.

Executive Meeting :—Before the regular Meeting the Executive met and had their meeting.

Yearly Reports :—Mr. A. A. Sobrian (Delegate) then gave a résumé of the year's work, that out of 13 meetings held by the Parent Society he attended 11. Mr. W. W. Bonyun, Hon. Treasurer, gave his report, showing the financial state of the Society.

The Secretary then read a full report showing the various transactions and doings of the Society during the year.

The Chairman's Remarks :—The Chairman remarked on the financial position of the Society and with respect to the year's programme, he thought that the Society should not confine itself to anything definite, but should proceed as they did during the past year.

The next Meeting at Cedar-Grove :—The next meeting to be held on the 24th of February at Cedar-Grove—the estate of the Chairman, Sir Norman Lamont, Bart. There being no other business, the meeting terminated.

The regular monthly meeting of the above named Society was held on Saturday, the 24th February on the kind invitation of Mr. and Mrs. J. C. Augustus, at Palmiste, at 3 p.m.

Present :—Messrs. J. C. Augustus, Vice-Chairman, W. W. Bonyun, A. A. Sobrian, A. H. Dasent, R. M. Scott, F. Maughan, E. Douglin, H. Stent, C. S. Sanowar, J. S. Sammy, W. Wickham, E. Lewis, S. A. Sumadh, H. Gobin, T. R. Sinanan, H. Dee, J. E. Thornhill, J. Sukhbir, James Mungrah, A. Bobb, J. H. Morris with A. E. Lakham, Hon. Secretary, and H. Gordon, Asst. Secretary. The following ladies were also present:—Mrs. J. C. Augustus, Mrs. H. Stent, Mrs. W. Bonyun, with the Misses Goddard.

Minutes :—The Minutes of the last meeting were read and confirmed.

Correspondence :—The Secretary read a letter from the Secretary of the Tacarigua District Agricultural Society, inviting this Society to their Show which was held on the 17th February. As this letter was received at a late hour the Members were unable to attend. The Chairman directed the Secretary to write thanking them for their kind invitation.

Delegate's Report :—Mr. A. A. Sobrian reported that at the last meeting of the Parent Society, Mr. Stollmeyer brought up the question of the Bois L'Orme, whether in the opinion of the Society the use of the Bois L'Orme was necessary as a means of washing Cocoa and whether it imparted colour to the beans. The matter was referred to the Director, who said that it could be used, as it did not come under the Ordinance.

The next matter was a paper read by the Veterinary Surgeon on ticks, who strongly recommended "Cooper's Cattle Dip."

Mr. Mungal's motion was postponed to next meeting.

The Chairman's Address :—The Chairman then gave a very interesting and instructive address on his recent trip to both England and Scotland. He illustrated by numerous maps, charts, and post-cards.

Vote of Thanks :—Mr. Dasent moved a very hearty vote of thanks to the Chairman, seconded by Mr. Scott.

The Members Entertained :—The Members and others present were entertained to tea and the meeting

SAVANA GRANDE.

The monthly meeting of the above Society took place on the 5th June, at which the following gentlemen were present :—Capt. Mark S. Moody-Stuart, President in the Chair, Capt. R. C. Gooden-Chisholm, Messrs. G. A. Jones, Hon. Secretary, D. Mahabir, Vice-President, G. C. Wyatt, E. Phillips, J. H. Dubé, O. McClean, Nath. Gaze, Pargas Singh, James Brown, T. Boodoosingh, Agricultural Adviser, R. Silochan, and M. B. Collymore, Hon. Asst. Secretary.

The minutes of the May meeting were read and confirmed.

Correspondence :—A letter was read from the Secretary of the Parent Society regretting Mr. Ramcowar Singh's inability to attend the last meeting of the Agricultural Society in order to receive the Diploma of Merit, and requesting him to be present at the June meeting. He also congratulated this Society on the success of the last vegetable Competition.

Lecture :—Capt. Metivier then read the following paper. See Society paper No. 796.

This was followed by discussion, after which a vote of thanks to the lecturer was moved by Mr. David Mahabir, which was seconded by Capt. Chisholm and acknowledged. The meeting then rose.

WINDWARD—ROXBOROUGH (TOBAGO).

Minutes of meeting held on May 8th, 1923, at the Roxborough Court House.

Present :—Messrs. J. B. Murray, J.P., Deputy Chairman presiding; A. Jones, Vice-Chairman; F. D. Davis, Adviser; W. Rodriguez, Hazel Fraser, Hilda Oneille, Ebenezer Edwards, H. Melville, N. Holder, Robert Douglas, Leoni Hercules, Charles Jack, Richard Jack, N. McCorny, William Harper and F. J. B. Henry Honorary Secretary.

Minutes :—The Deputy Chairman, Mr. J. B. Murray, having declared the meeting open called upon the Secretary to read the minutes of the last meeting. The minutes were read and their confirmation was moved by Mr. F. D. Davies, seconded by Mr. Robert Douglas and was confirmed by a unanimous vote.

Correspondence :—A letter from Mr. E. B. Smith was read.

Vote of Thanks :—It was moved by Mr. F. D. Davies, seconded by Mr. Jones that a vote of thanks be forwarded to Messrs. Smith & Reid for the interest they have taken in the welfare of the Society. Carried unanimously.

Election :—Messrs. Daniel Kerwood and James Douglas were elected to membership by a unanimous vote.

Report on Demonstrations:—The Secretary read his report on the Demonstration at Louis D'or Estate. A few corrections were inserted by the Adviser, Mr. F. D. Davies, and after due comment the report was duly accepted.

Vote of Thanks to Secretary :—A Vote of Thanks was moved by Mr. R. Douglas, seconded by Mr. F. Davies, in favour of the report the Secretary had presented to the Society that day.

Diseased Coconut :—The question of disease in Coconut trees formed a healthy subject of discussion as from points arising out of the report presented by the Secretary. The discussion was led by Mr. Davies and followed by Messrs. Murray and Fraser.

Postponing of Subject :—The Subject for the evening was a lecture by the Adviser on "The Anatomy of a tree" but owing to the length of the preliminary affairs of the meeting, and the unpunctuality of most of the members the Chairman was obliged to ask Mr. Davies to postpone his lecture till next meeting. Mr. Davies willingly consented to the Chairman's proposal and the subject was then postponed.

The meeting then stood adjourned after the Roll was taken and the national anthem sung.

Minutes of the Regular Monthly meeting held on the 12th June, 1923 at 4.30 p.m.

Present were the following members :—Messrs. J. B. Murray, J.P., (Deputy Chairman) presiding, A. Jones (Vice-Chairman), H. Fraser, N. Holder, C. Jack, R. Jack, R. P. Harries, N. McCony and F. J. B. Henry (Hon. Secretary.)

Minutes :—The Minutes of the last meeting were read and confirmed. Their confirmation was moved by Mr. H. Fraser seconded by Mr. N. Holder, and were confirmed by an unanimous vote.

Resolution :—The following resolutions was moved by Mr. H. Fraser, and seconded by Mr. N. McCony :—

- 1.—That this Society hold a Bazaar in the month of October, to include all products from the field and farm; together with Needlework, Handicraft, Preserves etc., etc.
- 2.—That everything be given by the Members and friends of the Society so that no expenditure would be incurred by the Society for the preparation.
- 3.—That the proceeds arising from the sale of the gifts presented be added to the Society's accounts.

This was carried unanimously.

The acting chairman, in commenting upon the motion said that this was a workable scheme for raising money and he heartily congratulated the mover of the Resolution and he hoped that the Society would be able to begin work and give due publicity of the movement in the month of August.

Owing to the absence of the Agricultural Adviser, the subject for the evening had to be postponed.

Complaint :—Mr. H. Fraser, Manager of Arden Estate, said he was just now experiencing very difficult times in the growing of "green vegetables." He has been losing considerably on his cabbages owing to a kind of "dry rotting" as soon as the "heads" are being formed. He was very sorry that the Advisor was unavoidably absent as he hoped to have got some instructions from him. Failing to meet the Advisor, he has put the subject before the House and was prepared to receive any methods of handling that any member would be able to suggest.

It was unfortunate that no member present knew much about growing these vegetables and the meeting with one accord expressed sympathy with Mr. Fraser's losses and hoped soon to receive instructions from the Adviser in arresting such a disastrous condition.

There being no other business the meeting terminated with a vote of thanks to the acting Chairman.

PLUGHS FOR RICE LANDS.

WE have ordered, to arrive in February, a number of small Ploughs suitable for use on Rice Lands where often only one animal is available.

The Ploughs are International and therefore need no recommendation as to their worth.

As a great many of them have already been booked we would ask those who will be wanting any for the coming Planting Season to get into touch with us at once.

5—7 INCH SIZES.

Repair Parts Always in Stock.

T. GEDDES GRANT, LIMITED.

TRINIDAD
MONTHLY PRODUCE REPORT AND STATISTICS.

COMPILED BY EDGAR TRIPP & Co.

Port-of-Spain, 30th June, 1923.

CACAO.—Receipts are falling off daily, but in spite of this, prices are declining, and there are very few buyers. Nominal values to-day are \$8.60 to \$8.75 for "Plantation" and \$7.75 to \$8.00 for "Middling Red" qualities.

Venezuelan cocoa is still arriving in limited quantities, and these parcels are being sold at \$9.75 to \$10.00.

SUGAR.—The rainy season has at last set in and is very much welcomed by Planters, which, together with the encouragement brought about by better prices, give fair promise of a good crop next year.

There has been a slight drop in prices both in the United Kingdom and U.S.A., but large shipments have been made during the month.

The reserve for local consumption is being sold wholesale at 8½ cents and 7½ cents for Yellows and No. 3 Grocery respectively.

MOLASSES.—It is interesting to notice the general improvement in the market, shipments totalling 32,568 gallons having been reported.

COCONUTS.—Prices were firm around \$15.00 and \$9.00 for Selects and Culls respectively, but even these prices were difficult to obtain on account of the advantage gained through converting them into Copra.

COPRA.—There was a slight easing off in prices during the month, closing ones being \$4.50 per 100 lbs.

as against \$4.75 last month. Large shipments are, however, still being made as will be noted on reference to the statistics furnished below.

ASPHALT & OIL.—Again have we got to report continued improvement, especially so in the case of Oil, total shipments to date of which aggregate 50,963,472 gals. as against 26,289,315 gals. for 1919, the largest amount on record since 1917.

CACAO.

Shipments of Trinidad Cacao During the Month of June, 1923.

Destination.			Weight in lbs.
To all countries	..	..	6,410,773 ..
Shipped previously	..	..	46,010,327 ..
			<hr/>
Total from 1st January	..	..	52,421,100 ..
			<hr/>
To same date 1922	..	..	33,624,532 ..
„ „ 1921	..	..	48,459,502 ..
„ „ 1920	..	..	48,447,777 ..
„ „ 1919	..	..	43,908,019 ..
„ „ 1918	..	..	36,871,808 ..
„ „ 1917	..	..	55,070,093 ..
„ „ 1916	..	..	37,662,970 ..
„ „ 1915	..	..	39,346,826 ..
„ „ 1914	..	..	54,323,618 ..
„ „ 1913	..	..	37,161,054 ..
„ „ 1912	..	..	55,494,269 ..
„ „ 1911	..	..	35,100,943 ..
„ „ 1910	..	..	39,277,699 ..
„ „ 1909	..	..	34,472,394 ..
„ „ 1908	..	..	29,725,362 ..

(SOCIETY PAPER No. 795.)

TRINIDAD CACAO.

MONTHLY SHIPMENTS AND OPENING AND CLOSING LONDON MARKET PRICES FROM JANUARY, 1909 TO 30th JUNE, 1928.

Concluded by Edgar Wright (d. 1911)

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	* 1922	1923
Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity	Price
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London Quotations for Ordinary:—

1st June per cwt.	52/—	54/—
30th „ „ „	52/—	54/—
To same date 1922	67/—	70/—
„ „ 1921	..	..	55/—	60/—
„ „ 1920	..	..	135/—	120/—
„ „ 1919	..	..	121/—	124/—
„ „ 1918	..	..	90/—	
„ „ 1917	..	..	85/—	86/—
„ „ 1916	..	..	87/—	85/—
„ „ 1915	..	..	82/—	79/—
„ „ 1914	..	..	58/—	
„ „ 1913	..	..	70/—	73/—
„ „ 1912	..	..	64/—	69/—
„ „ 1911	..	..	56/—	57/—
„ „ 1910	..	..	55/—	
„ „ 1909	..	..	65/—	

New York Quotations :—

1st June per lb.	..	..	9¼c.
13th „ „ „	..	..	8½c.
16th „ „ „	..	..	8⅝c.
21st „ „ „	..	..	8⅞c.
25th „ „ „	..	..	8⅝c.
30th „ „ „	..	..	8¾c.
At same date 1922	..	..	11⅝c.—11¼c.
„ „ 1921	..	..	8¼c.—7¼c.
„ „ 1920	..	..	18¼c.
„ „ 1919	..	..	24½c.—23¾c.
„ „ 1918	..	..	12c —12½c.
„ „ 1917	..	..	12c —12½c.

Foreign Cocoa Shipped for the Quarter ending
30th June, 1923.

To all Countries	3,311,586 lbs.
Shipped previously	1,985,506 „
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Total from 1st January ..	5,297,092 „
To same date 1922	4,085,157 „
„ „ 1921	4,070,707 „
„ „ 1920	4,241,584 „
„ „ 1919	2,694,592 „

SUGAR.

Shipped for the month of June, 1923.

To all countries	17,282,102 „
Shipped previously	52,310,869 „
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Total from 1st January	69,592,971 „
To same date 1922	82,123,508 „
„ „ 1921	62,961,808 „
„ „ 1920	94,938,184 „
„ „ 1919	66,475,277 „
„ „ 1918	60,040,010 „

London Quotations for Demerara Crystals:—

1st June per cwt.	61/6— 64/6
9th „ „ „ „	62/— 64/—
13th „ „ „ „	61/— 63/—
20th „ „ „ „	60/— 62/6
30th „ „ „ „	59/— 61/6

At same date 1922	..	..	41/—	44/6
„ „ 1921	..	..	56/—	49/—
„ „ 1920	..	..	145/—	150/—
„ „ 1919	..	..	59/9—	63/6
„ „ 1918	..	..	57/9	
„ „ 1917	..	..	46/9	
„ „ 1916	..	..	40/1½—	43/1½
„ „ 1915	..	..	25/—	28/—
„ „ 1914	..	..	13/—	13/3
„ „ 1913	..	..	17/—	14/—
„ „ 1912	..	..	16/6—	17/6
„ „ 1911	..	..	14/6—	15/3
„ „ 1910	..	..	18/9—	19/3
„ „ 1909	..	..	14/6—	15/3

New York Quotations, Crystals:—

1st June per 100 lbs.	..	8.16
5th „ „ „ „	..	8.08
7th „ „ „ „	..	8.03
9th „ „ „ „	..	8.06
13th „ „ „ „	..	8.03
14th „ „ „ „	..	7.78
15th „ „ „ „	..	7.66
16th „ „ „ „	..	7.16
21st „ „ „ „	..	6.75
23rd „ „ „ „	..	7.02
25th „ „ „ „	..	7.28
30th „ „ „ „	..	7.78

At same date 1922	..	..	4.25—	4.73
„ „ 1921	..	..	4.77—	4.00
„ „ 1920	..	..	22.07—	18.26
„ „ 1919	..	..	6.90—	7.28
„ „ 1918	..	..	6.00½	
„ „ 1917	..	..	5.95—	6.52

MOLASSES.

Shipped for the month of June, 1923.

To all countries	..	..	32,568 gals.
Shipped previously	..	..	49,900 ..
			<hr/>
Total from 1st January	..	..	82,468 ..
To same date 1922	..	..	99,850 ..
„ „ 1921	..	..	56,949 ..
„ „ 1920	..	..	356,731 ..
„ „ 1919	..	..	199,857 ..
„ „ 1918	..	..	252,612 ..

RUM.

Shipped for the month of June, 1923.

To all countries	..	..	10,348 ..
Shipped previously	..	..	11,668 ..
			<hr/>
Total from 1st January	..	..	22,016 ..
At same date 1922	..	..	1,802 ..
„ „ 1921	..	..	160,643 ..
„ „ 1920	..	..	18,514 ..
„ „ 1919	..	..	44,381 ..
„ „ 1918	..	..	47,178 ..

COCONUTS.

Shipped for the month of June, 1923.

To all countries	..	..	549,245 nuts.
Shipped previously	..	..	5,449,165 ..
			<hr/>
Total from 1st January	..	..	5,998,410 ..

To same date 1922	..	..	9,510,774	nuts
" " 1921	...	...	9,874,906	"
" " 1920	[e.e]	[e.e]	12,218,134	"
" " 1919	[e.e]	[e.e]	12,823,520	"
" " 1918	..	..	10,798,312	"
" " 1917	..	..	7,382,637	"
" " 1916	..	..	7,601,775	"
" " 1915	..	..	3,756,580	"
" " 1914	..	..	8,716,417	"
" " 1913	..	..	6,878,587	"
" " 1912	..	..	8,374,693	"

Foreign Coconuts Shipped for the Quarter ending
30th June, 1923.

To all Countries	..	..	Nil.
Shipped previously	..	..	2,247 "
Total from 1st January	..	..	2,247 "
To same date 1922	..	..	14,875 "
" " 1921	..	..	392,040 "
" " 1920	..	..	764,575 "
" " 1919	..	..	513,729 "

COPRA.

Shipped for the month of June, 1923.

To all countries	..	..	1,578,160	lbs.
Shipped previously	..	..	5,224,845	"
Total from 1st January	..	..	6,803,005	"

To same date 1922	..	..	3,982,338 lbs.
" " 1921	..	..	1,933,610 "
" " 1920	..	..	958,410 "
" " 1919	..	..	1,317,268 "
" " 1918	..	..	2,896,372 "
" " 1917	..	..	3,362,201 "
" " 1916	..	..	1,607,091 "
" " 1915	..	..	2,460,017 "
" " 1914	..	..	774,618 "
" " 1913	..	..	749,718 "
" " 1912	..	..	1,611,690 "

ASPHALT.

Shipped for the month of June, 1923.

To all countries	13,836 "
Shipped previously	68,205 "

Total from 1st January	82,041 "
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To same date 1922	65,291 "
" " 1921	56,102 "
" " 1920	56,163 "
" " 1919	30,042 "
" " 1918	16,335 "
" " 1917	43,201 "

OIL.

Shipped for the month of June, 1923.

To all Countries	9,684,055 "
Shipped previously	41,279,417 "

Total from 1st January	50,963,472 "
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To same date 1922	22,035,145 "
" " 1921	18,518,620 "
" " 1920	18,448,025 "
" " 1919	26,289,315 "
" " 1918	21,065,825 "
" " 1917	..	..	18,180,472 "

Rainfall for June, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		ERIN		KING'S BAY TOBAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1	10
2
3
4	...	47	...	...	...	40	...	...
5	...	41	...	...	...	71	...	01
6	...	32	...	80	...	41	...	...
7	...	12	...	55	...	10	...	15
8	...	05	...	32	...	57	...	...
9	...	7	...	09	...	13	...	...
10	...	58	...	05	...	92	...	09
11	...	4	...	...	...	...	...	...
12	07	...	06	...	...
13	01	...	11	...	...
14	04
15	05	...	...	...	...
16	...	31	...	...	...	10	...	...
17	89	...	58	...	...
18	...	05	...	03	...	...	...	02
19	...	23	...	...	...	28	...	...
20	33	...	...	...	...
21	...	10	...	09	...	...	...	...
22	10	...	20
23	01	...	...	...	23
24	12	...	23	...	23
25	85
26	05
27	...	21	...	11	...	11
28	...	21	...	07	...	50
29	...	47	...	10	88
30	1	10	...	68	...	63	1	45
31

TOTAL.	4	74	5	30	5	94	3	46
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Note—	June,	1922	9	00
"	"	1921	6	.39
"	"	1920	8	.57
"	"	1919	10	.60
"	"	1918	7	.62
"	"	1917	9	.84
"	"	1916	8	.57
"	"	1915	9	.55
"	"	1914	...	...	...	9	.50
"	"	1913	...	...	...	9	.89

Years—Total	1922	(at Lewisville)	...	81	.16
"	1921	...	...	78	.79
"	1920	59	.07
"	1919	60	.19
"	1918	70	.58
"	1917	73	.64
"	1916	69	.41
"	1915	70	.57
"	1914	54	.86
"	1913	65	.81

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- Dr. A. Fredholm.
- C. Glaudon.
- Report of Cocoa Committee.
- G. N. Walcott.
- Adopted at a meeting of the
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- R. S. Reid.
- Report of Joint Executive
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- Mr. W. G. Freeman, B.Sc.
- Dr. Geo. Masson.
- Report by Sec. submitted to
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- F. W. Ulrich.
- J. Birch Rorer.
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 Frank Stell.
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THE ARCADE.

VALUE OF UNLIMITED LIABILITY WHEN APPLIED TO CO-OPERATIVE CREDIT SOCIETIES.

How to obtain the use of borrowed Capital without a Capital of guarantee is the problem to be solved when dealing with Co-operative Agricultural Loan Banks of the "Raffeisen" system.

To form this Capital of Guarantee, Unlimited liability is the instrument used by the Pioneers of these Institutions—this means the absolute joint responsibility of all Members and is the pivot upon which the whole system turns—it signifies that all is for one and one is for all.

At all times there have been strong objections to the principles of Unlimited liability, it is considered obnoxious and has proved to be the stumbling-block in the way of the spread of Agricultural Banks, especially in England, On the other hand, it has been most successfully employed in Germany, Italy, France and other European Countries and has been disarmed of all its terrors when it is properly applied. It is not considered absolutely indispensable in many countries where these Institutions have been flourishing and where there is a sufficient Reserve, which is the first duty of these Institutions to form and which becomes the backbone and the rock on which they stand. In newly formed Credit Societies, unlimited liability is a necessity and is a real benefit by the compulsion brought to bear upon Members to save regularly and steadily and by their savings to raise up a Capital of guarantee which becomes an inducement to Members to practice the great economical virtue of thrift.

In the Credit Societies of the "Raffeisen" system the objections to Unlimited liability are met:

1. By the rule that all Members must belong to the same rural district and this obviates risks by the intimate knowledge that each of its Members has of the others' affairs and by the mutual supervision thereby engendered.

2. Loans are only granted for specific purposes and with the greatest caution and there is a rigorous supervision on their actual employment. The borrower has to state his object for borrowing and once approved by the Managing Committee, it is recorded in the Minute Book and must be adhered to.
3. The people who are liable, also dispose of the money, their liability is limited by themselves and this is how it is rendered safe. Nothing pledging the credit of the Society can be entered into without the consent of the Members in general Assembly. All speculations and ordinary banking operations, such as discounting of notes are forbidden and absolutely no engagement pledging the credit of the Society can be entered into—risk is the one thing that must be avoided.
4. The most important part, is that no man can become a Member, except that he can thoroughly be trusted, and as a check upon admission to Membership, unlimited liability sharpens the wits of people like nothing else and brushes away all scruples of ordinary courtesy—no man hesitates to say no to a candidature when he realizes that saying yes may cost him money. Once people find out that Membership is altogether dependent upon their good character and good conduct, Loan Banks become admirable moral reformers. The ideal is to form an honest and industrious family with community of aims of interests and sympathies.

The strength of Unlimited liability, therefore, lies in the honesty and integrity of its Members. The French Financier, Mr. Leon Say, lays it down that out and out the best form of credit for banking purposes is purely personal credit. "Le crédit tout court, sans phrase—le crédit sur gage n'a jamais été que l'enfance du crédit."

5. The speedy formation of a strong Reserve, which becomes the property of the Bank and which cannot be shared or disposed of except as provided by the Rules, makes Unlimited liability dispensable when it has assumed the proportion of security required.

(o)

PARLIAMENTARY DELEGATION TO THE BRITISH WEST INDIES AND BRITISH GUIANA.

The West India Committee,
14, Trinity Square,
London, E.C. 3.
June 29th, 1923.

The Chairman,

The Trinidad Agricultural & Commercial Society,
Trinidad, B.W.I.

Dear Sir,

You will recall that last year the Jamaica Imperial Association suggested that Lord Burnham, whom they had invited to visit Jamaica, should be accompanied by a party of Members of Parliament. This, unfortunately, proved impracticable owing to the General Election.

2. We have for some time past had in view the desirability of a visit of British legislators to the British West Indian Colonies and British Guiana, and have recently been in correspondence on the subject with the Empire Parliamentary Association, an Organisation officially recognised and having its headquarters in Westminster Hall.

3. The matter was recently brought before a meeting of the Council of that body, and we have now been informed that the Empire Parliamentary Association would be very glad to co-operate in arranging a visit of a Parliamentary delegation to the British West Indies and British Guiana during the coming winter, if this suggestion commends itself to the Colonies concerned.

4. The proposal briefly is that a party of 25 or 30 Members of Parliament (each accompanied, if desired, by his wife, daughter or relative, the total delegation not exceeding 50 or 60 in number), might leave for the West Indies after the Autumn Session, say in December, and might visit Barbados, Trinidad, British Guiana and Jamaica, in which colony they might attend the Agricultural Conference to be held in January next.

5. It is further suggested that an opportunity might be afforded to the members of the Delegation of discussing commercial and economic questions affecting the British West Indies and British Guiana either in Barbados, Trinidad, or British Guiana, through the good services of the Associated Chambers of Commerce, of which we have been assured by the President of that body, and that similarly the Jamaica Imperial Association might arrange for them an economic discussion of brief duration in Jamaica.

6. The Members of the Delegation would be expected to pay their own travelling expenses, but would, if the suggestion commends itself to those concerned, be the guests of the various Colonies visited during their stay in them, the Agricultural and Commercial Societies undertaking to arrange for the Board and Lodging and entertainment for say a period not exceeding one week in each instance.

7. We would mention that these proposals have already been considered by the Jamaica Imperial Association (which we have approached through their Secretary, (who is at present in London), and that that body has undertaken, as we have learnt by cablegram, to extend an invitation to the Parliamentary Delegation on the lines suggested.

8. We should be glad to know if your Society in association with the Trinidad Chamber of Commerce, to which I am also writing, would be willing similarly to extend an invitation to the Delegation consisting of 50 or 60 in all.

9. We would gladly undertake all arrangements with regard to transport to the West Indies and would give you as long notice as we possibly could of the projected dates of arrival of the party and the duration of its stay in your colony which would not exceed one week.

10. We contemplate a delegation of Members of Parliament drawn from every political party, and we need not emphasize the advantages which would be derived from having subsequently in the House of Commons a number of Members acquainted with West Indian problems, as would be the certain result if such a visit as is now projected materialised.

11. We are informed by Sir Howard d'Egville, the Secretary, that it is possible that the Empire Parliamentary Association might wish to include in the delegation a few representatives from the Parliaments of Canada, Australia and New Zealand if this could be effected without increasing the total number of the party. You will readily appreciate what advantages would be reaped by the British West Indies and British Guiana were they to become the focus of attention in the Public Press as they would do through the visit of so influential a delegation as is contemplated.

12. You will understand that five or six months do not give much time for completing arrangements of this kind, and, in the circumstances, we venture to hope that you will let us know by cablegram, on as early a date as may be convenient to you, if you would be prepared to arrange for the entertainment of the delegation in your Colony by finding Board and Lodging for its members, either in private houses or at Hotels, and by organising expeditions for them so that they may have the opportunity of seeing as much as possible of the life and industries of your Colony during a short stay.

Awaiting your reply,

I am, Sir,

Yours faithfully

ALGERNON ASPINALL,

Secretary.

(Copy.)

Port-of-Spain,
Trinidad, 26th July, 1923.

The Hon'ble Acting Colonial Secretary,
Port-of-Spain.

Sir,—I beg to enclose a letter from the Secretary of the West India Committee which speaks for itself and which kindly return at your convenience.

As the subject matter of the letter is one that concerns the Colony as a whole, the President of the Society and myself consider it advisable to communicate the contents for His Excellency, the Governor's information.

We feel sure that the Agricultural Society will be willing to help, but as the funds at its disposal are limited and as it is composed of Agriculturists who, at the present time, are unable to aid financially, we foresee that the proposal will be difficult of realization, unless the Government can see its way to contribute so that the desired end can be achieved.

I remain,
Your Obedient Servant,

L. DE VERTEUIL,
Secretary.

In answer to the above, we are informed by the Acting Colonial Secretary, that the Secretary of State has approved of expenditure being incurred up to £1,000 to meet the cost of hotel accommodation of the British Legislators during their stay in this Colony.

A Committee is to be appointed to make the necessary arrangements for the entertainment of the visitors.

DEATHS OF CATTLE IN THE QUEEN'S PARK SAVANNAH.

REPORT BY THE DIRECTOR OF AGRICULTURE

Hon'ble Colonial Secretary (Ag.)

The deaths of seven cattle on the Queen's Park Savannah within a few days was naturally the cause of much trouble and anxiety to their owners, and to the Government Officers in charge of them.

The deaths occurred on the following dates :—

March 29	1 cow.
„ 30	1 heifer, 1 calf.
„ 31	1 cow, 1 heifer.
April 2	1 cow.
„ 3	1 heifer.

(2) The first animal was not seen by the Government Veterinary Surgeon as the owner removed the carcass immediately after being notified of the death by the Pasture Keeper. All the others were examined, with results indicated by the following extract from the report of the Government Veterinary Surgeon:

“All these animals died quite suddenly, in fact they were all found dead though in the case of the heifer that died in the morning of the 3rd April it was noticed to be suffering from profuse diarrhoea about 6.30 a.m. and death followed an hour later.

“In the first two cases in which I made post-mortem examinations, the cause of death was due to Gastro-Enteritis, due in my opinion to some irritant which the animal had eaten. When the 4th and 5th animals died I called in Dr. Shannon in consultation and we again found the cause of death to be the same as I discovered in the first cases. There were no signs of any contagious disease and as on the previous day all the organs were

quite normal. Specimens from all cases (stomachs and their contents) I kept to hand over to the Government Analyst.

"After the deaths of the 6th and 7th animals I invited the following Veterinary Surgeons to attend post-mortem examinations of these animals:

Dr. Machlachlan of Usine Ste. Madeleine Sugar Co.

Dr. Bossiere of the City Council.

Dr. Shannon of the Government Farm.

Dr. Stewart, the Government Bacteriologist and Mr. Nowell, Assistant Director of Agriculture were also present.

"Post-mortem examinations disclosed that death was due to acute Gastro Enteritis caused by some severe irritant, which the animals had eaten, and it was decided to send the stomachs and their contents from both these cases to the Government Analyst. I did my utmost to get in touch with Mr. Shrewsbury on Sunday and Monday (Public Holiday) but without success and it was only on Tuesday that I saw him and explained what had happened. As the original stomachs and their contents were too far decomposed I decided to hand over to the Analyst the fresh specimens removed from the animals on Tuesday."

(3) As in the opinion of the four principal Veterinary Surgeons of the Colony the deaths were due to the action of some irritant poison it was decided to have an investigation made by Mr. H. S. Shrewsbury, F.I.C., F.C.S., the Government Analyst. The cattle were also removed from the Queen's Park Savannah to the adjacent pasture.

(4) The Government Analyst's Report which has already been published was as follows :—

"The fourth stomachs of each cow contained large amounts of salt (sodium chloride) dissolved in the stomach fluids, 132 grains in the case of cow "A" (a concentration of 132 grains per pint) and 485 grains in the case of cow "B" (a concentration of 97 grains per pint).

“The walls of both stomachs were very highly inflamed; such a condition has been recorded in cases of poisoning of cattle by common salt.

“There was no evidence of the presence of any other poison in the remains.

“It is on record that 27 pounds of salt dissolved in water given to seven cattle caused their death within 24 hours.

“In another case of salt poisoning Herapath found 42 grains to the pint of stomach contents.”

In both animals the quantity of salt found was in excess of that known and recorded in Veterinary and Chemical text books as capable of causing the death of a cow.

(5) The results obtained previous to the post-mortem examination were consistent with the Analyst's finding; i.e. common salt in the quantity found in the stomachs is known to be capable of causing the symptom seen by the Veterinary Surgeons although other substances could also produce similar symptoms.

(6) The net result was thus :—

(a) Veterinary reports that the deaths were due to some irritant poison and not to disease.

(b) Analyst's report that common salt was present in more than sufficient quantity to cause death.

(c) Veterinary report that common salt was known to be capable of causing death with the post-mortem appearances previously seen

(7) The conclusion reached was therefore that the cows had died through eating an excessive quantity of common salt. That cows will eat an excessive quantity of common salt, sufficient to cause death, is recorded in Veterinary works, especially if they are not regularly given salt with their food, when they develop a “salt hunger” and will eat large quantities if opportunity offers.

(8) Before the result of the Analyst's examination was known, Officers of the Department followed up every line which appeared to offer any hope of solving the question.

(a) Possibility of an Epidemic disease:

The Veterinary examination was first directed to the possibility of Anthrax and other causes of sudden deaths. The characteristic symptoms were lacking, and the fact that no more deaths occurred after removal of the animals to another pasture excepting one which was ill at the time of its removal eliminates this possibility.

(b) Occurrence of Poisonous Plants on the Pasture: A local poisonous plant is Brinvilliers (*Spigelia anthelmintica*). During many years knowledge of the savannah by botanists this plant has not been found there. It has been searched for since the deaths, but not found. Another plant with a reputation for being poisonous to stock is the Wild Ipecacuanha or Red Head (*Asclepias curassavica*). This for many years has been present on the Queen's Park in small quantities and is to be found on most pastures in the Colony, often in considerable abundance. Cattle do not appear to eat it, and I do not know of any definite evidence of its being injurious to stock.

(c) Possibility of any poison having been used on the Queen's Park as an insecticide, or weed-killer was carefully enquired into, but nothing was ascertained of any such use. Statements in the press that the Department of Agriculture or the Medical Department had used sprays etc. were untrue.

(9) The finding of common salt by the Government Analyst was quite unexpected. It seemed incredible that

cows could get access to salt in sufficient quantity to cause death on the open savannah itself. Suspicion had, however, already been directed to the paddock, as four of the animals which died were known to have been in the habit of frequenting that enclosure. Accordingly, before the report was made public, I asked the Government Veterinary Surgeon to inspect the paddock to ascertain whether salt was kept there. He found salt in two stables, a practically full bag in one, and a half bag in another. At the time of inspection the salt was not accessible to cows.

(10) After the finding of common salt as the cause of death the cattle were returned to the Savannah on April 11, and there have remained perfectly healthy.

(11) The general conclusions arrived at is therefore that the deaths were due to common salt, and that probably owing to some entirely exceptional circumstance the cattle obtained access to this in the paddock.

W. G. FREEMAN,
Director of Agriculture.

29. 6. '23.

—————(o)—————

CACAO INDUSTRY.

The following letter was received from the General Secretary of the British Empire Producers' Organisation which speaks for itself.

3rd July, 1923.

Dear Sir,

I enclose herewith a copy of the Minutes of Meeting of the Cocoa Section. As you will see, the Meeting was very representative, your three members being present, Sir Edward Davson representing the other West Indian Cocoa-producing Colonies and Mr. J. H. Batty,

who is, as you are aware, the Chairman of the African Eastern Corporation and is in a position to speak on behalf of the West African Cocoa interests.

The Minutes, I think, speak for themselves, but I am instructed to inform you that the matter was discussed very fully and at great length and the Members were unanimous in the decisions arrived at. In the Cocoa Section of the Organisation, all the Empire Cocoa producing interests are represented and the Committee felt strongly that there would be no advantage in calling into Conference foreign producers with whom Empire Cocoa Planters would have very little in common.

The Organisation, as a whole, is presenting a reasoned memorandum to the Economic Conference on the whole question of preference, and also in detail on the individual needs of the industries which constitute it, and it was for this reason that the Committee felt that they could best forward the interests of the Cacao industry by taking part in this comprehensive and important movement.

The decisions of the Committee have come before the Council and have met with its unanimous approval and we hope that the Agricultural Society of Trinidad and Tobago will approve the attitude adopted.

I am to say on behalf of your own representatives that all of them were entirely in favour of the decisions arrived at.

Perhaps you will favour me with the comments of your Council and also with any points that they wish made in the case that we propose to put before the Economic Conference.

Yours faithfully,

HAROLD T. POOLEY,

General Secretary.

The Secretary,

The Agricultural Society Trinidad & Tobago,

Port-of-Spain,

Trinidad, British West Indies.

Minutes of Meeting of Cocoa Committee held at the offices of the British Empire Producers' Organisation, on Monday, the 25th June, 1923 at 12 o'clock.

Present :—Messrs. H. Hamel-Smith, Sir Edward Davson, Peter Abel, J. H. Batty, F. J. Morris.

(1) On the motion of Mr. Batty, seconded by Mr. Morris, Mr. Hamel-Smith took the Chair for the Meeting.

(2) The Chairman stated that the Meeting was called to consider the following resolution of the Agricultural Society of Trinidad & Tobago.

“That in view of the disparity between the prices paid to the producer of raw Cocoa and the prices paid by the Consumer of the manufactured article which naturally restricts consumption and impedes the demand for the raw product, the British Empire Producers' Organisation be asked to circularise the Cacao producers of the world to join in a movement for convoking a world Conference in England on the occasion of the coming Exhibition to discuss the parlous position of Cacao and to decide what (if any) united action should be taken to secure a fair return to the producer and this Society place at the disposal of the Organisation such sum as may be deemed sufficient as a contribution towards the movement.”

After the discussion of the best method of assisting the Cacao industry in Trinidad, the Meeting came to the conclusion that as the whole of the Empire producers of Cocoa were already represented on the Cocoa Section of the Organisation it would not be necessary to call a Cacao Producers Conference at the present stage, but that it would be much more effective to prepare a strong case on behalf of the Empire Cacao industry for presentation to the Imperial Economic Conference in October, particularly as the other Overseas producing industries as represented in the different Sections of the Organisation, were

similarly preparing cases which would be submitted separately and also form part of a joint Empire producers case on the whole question of preference.

It was felt by the Committee that the most effective method of assistance to the industry which was likely to be obtained, would be a reversion of the money value of the preference to 7/- its value before the 1922 Budget and a stabilisation at that figure. Mr. J. H. Batty said that on behalf of the West African industry he thought that they would certainly support this proposal and suggested that the support of the West African Section of the London Chamber of Commerce should be asked for. He felt that this would be forthcoming.

The Secretary was instructed to write to the Trinidad Chamber of Commerce stating the decisions of the Meeting.

—————(o)—————

GENERAL MEETING.

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Minutes of the General Meeting of the Society held in the Council Chamber on Thursday 12th July, 1923, at 1.30 p.m.

Present : W. S. E. Barnardo, President in the chair, Hon'ble A. B. Carr, Vice-President, H. Warner, Honorary Vice-President, Revd. H. H. Morton, Messrs. Wm. Nowell, Assistant Director of Agriculture, C. Fleming, E. A. Robinson, E. Radcliffe Clarke, C. P. Rojas, J. Forbes Todd, M. Moody Sturat, A. Cory Davies, S. Medford, A. A. Sobrian, H. Gajadharsingh, V. J. Stauble, J. Knox, C. M. Samlalsingh, A. V. Stollmeyer, D. Majani, P. A. T. O'Connor, A. F. Clarke, M. Hamel-Smith, A. G. Hamlyn, G. de Nobriga, J. Dubé, F. Le Blanc, W. G. Freeman, Director of Agriculture, J. L. Wilson-Goode, Trade Commissioner, Hon'ble Rev. C. D. Lalla, Captain Gooden-Chisholm, Capt. A. A. Cipriani, Lieut-Colonel J. H. Colten and L. de Verteuil, Secretary.

The Hon'ble R. G. Bushe, C.M.G. was in attendance.

Minutes.—The minutes of the meeting of 14th June were confirmed.

Election of New Member.—Mr. R. Johnstone, Manager of the "Perseverance" Coconut Estate, was proposed by Mr. C. Fleming and seconded by Mr. E. A. Robinson, to be a member of the Society—unanimously elected.

Before proceeding with the election, Mr. E. A. Robinson thought, that for obvious reasons, Mr. Fleming's motion: "that in future, election of new members be carried out by ballot," should be taken up.—The President ruled that the former method should be adhered to and the motion debated afterwards.

Election by Ballot.—Mr. Fleming moved "that in future, election of new members, should be carried out by ballot." He said this custom prevailed in other organizations and offered many advantages. This was seconded by Captain Gooden Chisholm and agreed to.

Agricultural Bank.—The debate on Captain Cipriani's motion, postponed from last meeting was resumed:

"That in the opinion of this Society, the attention of the Secretary of State for the Colonies should be again directed to the present financial depression and the distressing condition of the Cacao Planters of the Colony with the resultant threatened extinction of the entire Industry and the consequent unemployment of the Labouring Classes, with a view to steps being taken to afford the only possible relief by the establishment of the Agricultural Loan Banks as recommended by the Local Government, and that a deputation be appointed to present to His Excellency the Governor this resolution with request that it be forwarded to His Grace the Duke of Devonshire, K.G., C.B., Secretary of State for the Colonies, for his further and favourable consideration."

1. In opening the debate, the President said that at the last meeting there had been some misunderstanding as

to exactly what the proposals of the Government Committee were. Mr. Bushe who was Chairman of that Committee had kindly consented to attend the meeting and explain as far as he could, the points over which there were doubts or misunderstanding. A resolution had been before the Society a year ago and it was unanimously agreed to support the scheme for an Agricultural Bank put forward by the Chamber of Commerce. He thought the Society was quite justified in debating the question again, because conditions had altered since that time; no one had any idea that the financial depression would have continued and become worse, especially with regard to the Cacao Industry and as there was no sign of immediate recovery and that opinions had considerably changed with regard to the success of the scheme proposed by the Government Committee, it should be taken up again and threshed out. As the idea of a Bank was put forward with a view to helping the whole Cacao Industry and not the individual proprietor, this was a sufficient reason to change the mind of a great many as to the desirability of a Bank that would take mortgages over properties. Owing to the depreciation in the value of the Cacao Estates, the mortgagee more than the mortgagor would benefit by such a Bank and he did not mean by that, that the mortgagee was not deserving of consideration, but he did not think he required the same assistance to the extent the mortgagor required. By the parlous condition in which the Cacao Industry is undoubtedly in, he did not see why the Government should assume responsibility for such a risky scheme. Let them suppose the worst. Let them suppose that things did not improve, or did not improve within appreciable time. There could be no doubt that the majority of the estates in the island, at any rate 50% of them, would change hands. Whether there was a bank or whether there was no bank, it would make no difference, because the majority of the mortgaged estates were not worth the extent of their mortgages at present. Secondly, who would benefit by the establishment of that mortgage bank? The mortgagee, and no one else. He was

speaking from a planter's point of view. He was not saying the mortgagee should not be allowed to benefit. He was a most deserving person, but at the same time he did not require assistance to the extent the mortgagor did. If the cocoa industry was in a very bad condition, as most of them would agree it was at present, he did not see why the Government should assume the responsibility, —why the taxpayers should assume the responsibility for such a large and speculative scheme as a mortgage bank. What was going to happen? Let them take a far-fetched example. Imagine an estate valued sometime ago at \$20,000, and the owner had a mortgage of \$10,000. If that bank came into operation, or if it did not come into operation, in the ordinary course of business, the Mortgages Extension Ordinance would have to come to an end, and the ordinary law of the land would have to come into force. The present owner would be put up for sale. The mortgagee, in that case, would not get a bidder to bid to the extent to cover his mortgage of \$10,000 because it would not be worth \$10,000, which meant that he would have to buy it. He buys for the amount of the mortgage, and then the estate is unencumbered. What then was to prevent him (and it was a most likely thing to do, as he would not work his own capital) going to the Government bank and saying that he had an unencumbered estate valued at \$8,000 and wanted \$4,000 or \$5,000. They give him the amount. In other words, he only stood the chance of losing \$6,000 on the outside, depreciation on his mortgage. Then came the worst. Cocoa goes down, still more, and the estate is only worth \$5,000. He turns round digs out the eyes of the estates and goes to the Government's Bank and says: "Here it is gentlemen, I am finished." In his opinion, concluded the speaker, in the present state of affairs with cocoa depreciating with no immediate prospect, he considered the Government's going in for such a speculative scheme as a mortgage bank unwise. Such a scheme was not going to serve the individual nor the industry. (Hear, hear.)

2. The Hon'ble R. G. Bushe said that the Chairman

had invited him to make a statement as to what had been done up to the present, with regard to the proposals for an Agricultural Bank, but he was a little upset by his speech.

Proceeding, he said that the Secretary of State was really asked to accept the view that the Government was justified in raising a loan that would be charged on the Assets of the Colony for the purposes of Agriculture on the lines of the proposals which were before him. In the past, loans had been raised chiefly for Public Works. The proposals were that the benefit of Agriculture should form one of the reasons for a public loan, that would be charged on the Revenue and Assets of the Colony. It was proposed that the expenditure of the loan should be entrusted to the Directors or Managers of a Bank. The money was to be utilized in making certain loans to Agriculture. The loans were to be confined to Estates having permanent crops and it was proposed that they should be repaid in annual instalments over a period of years. It would also be part of the business of the Bank to make temporary loans against crops. With regard to the first proposal for mortgage loans to be repaid by annual instalments, that was accepted as the only way to benefit Agriculture permanently. It was being done in the United States, Canada, the various Dominions and France and it was being considered in England. This method was considered by those who had studied the subject as the only way by which permanent benefit could be given to Agriculture.

The instalments were based on mathematical principles, dependent on the rate of interest. The proposals of the Committee were that the loan to be raised by the Government should be at a rate of interest not exceeding 6 per cent. per annum. Last year a loan could not have been raised at a lower rate. This year it might be possible to raise a loan at 5 or $5\frac{1}{2}$ per cent. The scheme was based upon the loan being at 6 per cent. and the proposals were that the Government should grant mortgage loans over a period of thirty years at the rate of 7 per

cent, the repayment being by annual instalments. They must bear in mind that on that system the security on the loan was increasing every year as the loan became less, while the liability of the individual was decreasing. The question that arose was whether there was reasonable prospects of the Bank being able to meet its engagements on the figures that he had mentioned. It would be realized that the proposals were that if the Bank was allowed, the Governor in Executive Council, before it was put into operation would have to decide upon the system of valuation to be accepted by the Directors of the Bank, and also lay down the margin between the estimated value of an Estate and the loan to be made on mortgage. Of course it was possible that valuations to-day on Estates would be liable to further depreciation in the future but he thought it would be admitted that valuations to-day were very near the bottom mark and he thought that if the proposed Bank operated on the basis of values that were genuine values to-day, there would not be the risk which the Chairman anticipated from a possible further decrease in values. In regard to the proposals for ensuring that the Bank shall be able to meet its obligations to the Government the margin between the 6 per cent. payable to the Government and the 7 per cent. to be charged on loans to individuals was small, but there was the probability that the Government would be able to raise loans at a lower rate than 6 per cent. in the future, and it was proposed that the interest to be charged on temporary loans against crops should be fixed from time to time at such rates as to ensure that the Bank shall be able to meet its obligations to the Government. These were the chief proposals that were made with regard to the Bank to the Secretary of State. He would like to make it clear as there seemed to be some misunderstanding in the matter that the Bank would not be authorized to make loans on values which had been in existence in the past. It was on that point that the Secretary of State had based his reply. Following upon that the Government replied that that was never intended ; that loans

would be advanced on valuations of to-day, and the matter was still before the Secretary of State. He had gathered that the Government expected an announcement at any time. The last despatch was sent at the end of March. He thought the Secretary of State would probably wait until the Governor's arrival before coming to a final decision. In his view the bank proposal would be beneficial to the cocoa industry whether times were normal or not. Owing to the financial depression, of course, the position as the chairman had mentioned was somewhat strained. There was special legislation postponing the rights of mortgagees under the ordinary law and that was passed with a view to enabling proprietors who might not be over involved, an opportunity of tiding over the financial depression and allowing them to take advantage of any future benefits which they might not otherwise have got.

This abnormal state of things could not continue indefinitely. Of course it was a moot point how long it should continue. In his opinion the establishment of the bank would materially help to enable recourse to ordinary legislation sooner than otherwise. He quite agreed with the Chairman as to what might occur to property that had depreciated. He did not see any way by legislation how they could interfere definitely and finally between the mortgagee and the mortgagor. That must be settled by ordinary law or by negotiation between the two individuals themselves. In the case the Chairman instanced the mortgagee might have to bear some portion of the loss. He could not see anything that could be brought in by legislation. There were some cases where the mortgagee consented to a loss by agreeing to accept the capital without interest. That was an arrangement for the interested parties. The proposed bank was not intended solely as a substitute for the Agricultural Relief scheme, but for the future of the industry. Incidentally the bank would facilitate cases where at present the owner was in difficulties and assist him in tiding over the crisis. With regard to the point as to

priority which was a stumbling block at present he wanted to say that in this case there would be no question of priority. He reiterated that the bank would be of the greatest benefit to agriculture.

3. Mr. Radcliffe Clarke, expressed surprise at the statement made by the President and was ashamed to belong to a Society that gave such token of ingratitude and inconsistency; he thought the Society would be stultifying itself if they now ask the Governor to turn down the Bank proposals after they had requested him to do his best to obtain the sanction of the Secretary of State and after so much had already been done in the matter. He was afraid, that the impression that Cacao was doomed had got hold of the minds of many and at considerable length he endeavoured to prove, that if anything, consumption was in the increase and that production, in spite of the great West African output, was not more than the world at large could take. He criticised the statement made on a previous occasion, by Messrs. Freeman and Robinson and thought that the views expressed by Mr. E. A. Robinson with regard to the position of the Cacao Planters would tend to do a great deal of harm to the Colony.

4. Mr. Henry Warner said that the Amortization Scheme forming part of the Agricultural Bank merits the most careful and deliberate consideration. It was perhaps the most important that had ever been placed before the Agricultural Community, certainly it is so as affecting the Cacao Industry. First, as regards Peasantry and Owners not too heavily involved, it offers security of Tenure with the prospect of being able to hand down their properties to their children or heirs, as pointed out by His Excellency the Governor Sir S. Wilson to the Board of Agriculture, August last.

Secondly as regards the Cacao Industry and therefore the interests of the Colony, it will relieve the existing stagnation and there will be an incentive to cultivate and improve Cacao Properties which does not exist at the present time, especially among the Peasantry, who

are liable to be foreclosed and will not be induced to cultivate. Naturally every precaution must be taken to ensure the most careful inspection and valuation of each property to ensure that there is a substantial margin between the present value of the property and the sum for which it is to be pledged under the Amortization scheme—a margin of 40% or 50% probably. Proprietors even who are free from encumbrances will be able to avail themselves of this scheme by borrowing a sum of money to enable them to improve their existing cultivation, and keep them in good order in spite of low prices. He knows two proprietors of Cacao Estates, one fairly large and one small, who are prepared to borrow under the amortization scheme, the former £1,000 and the latter £500 to enable them to work their properties well during the times of prospective low prices.—Both of these gentlemen cleared off mortgages of over twenty thousand dollars during the times that prices of Cacao soared during the War, but neither of them is prepared to borrow under the ordinary Mortgage method and risk foreclosure by a possible greedy mortgagee. I have every belief that if used judiciously for the Amortization Scheme, the Loan of £250,000 offered by the Secretary of State will be amply sufficient to permanently remove the existing stagnation of the Cacao Industry of the Colony. The "Weekly Times" of June 7th refers to an Agricultural Credit Bill of similar nature to relieve the stagnation in Agriculture in England. The Government proposed to sanction loans repayable in sixty years at a rate of interest and sinking fund charges which would work out at £5 10s. 7d. per cent. as compared with the forty years and £6 8s. 3d. suggested by the Committee on whose report the bill was largely founded.

5. Mr. Cory Davies said that he had come to the conclusion that the scheme submitted to the Secretary of State was no solution of the difficulties being experienced by the mortgagees and mortgagors associated with the Cacao Industry. Mr. Bushe had said that the special legislation was passed with a view to giving proprietors

who might or might not be over involved an opportunity of tiding over the financial depression, but a little reflection would make them aware of what an astounding thing the moratorium on mortgages was as under this hurried piece of legislation people who were not entitled to benefit got them and he was convinced if they had Agricultural Loan Banks, ninety per cent, of the proprietors of Estates would have no property upon which they could offer proper security.—He thought that the first thing that should be done for the Industry and for those involved in it, was for mortgagors and mortgagees to get together and settle their business.

6. Mr. A. V. Stollmeyer, took it that the Society would not go to the extent of stultifying itself in view of its former unanimous support of the scheme. He was in sympathy with the motion but he would suggest that they refrain from being hasty. They all knew that the reply of the Secretary of State had created a certain amount of apprehension, but he felt that something must be done as early as possible and he was sure that it could be safely left to Sir S. Wilson to press their representations to the Secretary of State in the hope that wisdom would prevail. He was not a pessimist of the Cacao Industry, but he thought the Industry required direction and protection. The functions and aims of the Bank would fully meet those requirements. He happened to be a member of the Committee that considered the question and was quite familiar with it. The Industry was threatened and they wanted protection by way of money at reasonable rates, besides which ninety per cent. of planters wanted direction in cultivation—if the Government provided the money it should direct the manner in which it is to be used.—Some had suggested that instead of a Mortgage Bank, they should have a Bank to advance against crops only, but that was not going to overcome the evils which existed.

7. Mr S. Medford said when the debate on Captain Cipriani's motion was adjourned at the last meeting, I was

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standing with the intention of expressing my views thereon. Although I am entirely against the motion, yet I heartily congratulate Captain Cipriani on the lucid, fearless exposition that he put before the Society with regard to what he appears to believe would be the salvation of the peasants. I am glad to see that labour have got some one to represent it, and its own paper in which to express its views and vent its grievance. Captain Cipriani said the Agricultural Bank Scheme was initiated by the Chamber of Commerce, now there is nothing before this Society to show that the peasant proprietors or the peasants as a body ever interviewed the Chamber of Commerce and asked them to launch the Agricultural Bank at home on their behalf, hence we can come to no other conclusion, but that it was spontaneous, there was a band of patriots, philanthropists of the superlative degree, men who at the moment never thought of self, men who never thought of the consequences their business might suffer on account of the depressed state of the country, men who never thought of the heavy indebtedness of some of the estates to them, men who never thought of the mortgages some of them hold, that they may never realise, men who at that moment never thought of the mortgagees some of them represent, men who never would entangle the Government in any scheme that would ultimately benefit them, but whose whole concern was to assist the peasants in these troublous times, why a stranger looking on might have been moved to tears to see the integrity, and solicitude, depicted in the countenances of those philanthropists. The labour riots of 1920 began in Port-of-Spain and the few sporadic outbreaks we had in the country was caused by emissaries from Port-of-Spain, so it was with the Agricultural Bank. The scheme was hatched in Port-of-Spain, and by the same means was unanimously approved by the peasants and others in the country districts. The Chamber of Commerce advised the Government to put on the income tax, but like Ben Battle they failed when they advised the Government to take it off. The Chamber advised the Government to fix

the price of labour when cocoa was between 36 and 40 dollars per bag, but now it is between 12 and 13 dollars they are mute, now if the Chamber of Commerce wants to do the country a good turn, why don't they go to the Government and say look here, 30 years ago the population of this country were so many, and it cost so much to run the Government, to-day the population are so many, and the Government should cost so much, and use every legitimate means at their disposal to bring the matter to a successful issue, then they will have earned the thanks and gratitude of the whole country. This cocoa lamentation like the voice in Ramah, have been brought about from the cause that the majority of the cocoa estates have deteriorated in bearing withing the last two years between 30 and 40 per cent. The banks know that, the merchants know that, and although it is said that consumption is ahead of production, yet the principal markets of the world are overstocked, and last, but not least they fear the ever increasing African output, hence it is in my opinion they consider it most unwise to carry on cocoa estates, the majority of which are heavily indebted to them, and they know if they carry on, the estates will fall into their hands, and be millstones about their necks, now if these institutions that have carried on estates for years consider it wise to discontinue and the Government steps in and carries them on, the Government will be wise too, but wise-acres. It is my opinion that the bank will succeed because we are living in the days of the world's great tribulation, and anything that will oppress us in the future will most likely succeed, if the Bank succeeds the peasants will get a few pence at first, but never mind all the assurances to the contrary, never mind all the rounded phrases used to coerce this Society to give its assent to the Agricultural Bank, if the Bank becomes an accomplished fact, the man standing on credit, while he is head and ears in debt will get the pounds. When the money is to be paid back, the man who got the pounds will be hors de combat and the man that got the pence will be ground by taxation as fine as

Fry's Cocoa and will have to cut his tobacco and living expenses in half to find the money to pay back, that will be the result, I am in favour of the peasant and if the Government wants to help the peasant all right, because I am satisfied that those who will administer the Bank will be wise enough to prevent the peasant from ruining the country, but it is the pound man with the big mortgage that I am afraid of, and as Mr. Robinson said at the last meeting if the Government tries to help that man, it will set the country back 25 or 30 years, ah? perhaps 50. Now it may be asked how is it that the men administering the Bank will be able to prevent the peasants from ruining the country, and not prevent the pound man with the big mortgage, I say the administrators would be just as competent to look after the one as the other, but, be it remembered, that the administrators of the Bank are not the ones who will go to the country to value the property, they will have to go on what is put before them on paper, now there is a thing in the world, I have never seen it, I don't know if it is red, white, or blue, but I know the peasants never have it. It is influence, I think it is about 40 times as powerful as dynamite, and it is capable of making a piece of pig iron 12 inches square fit in a hole that was bored with an inch auger. I say emphatically that the peasants have only looked at one side of the Agricultural Bank Scheme, and have entirely failed to consider the other side. If this country had twelve industries of equal magnitude, and one got into the position that the cocoa industry is in to-day, the other eleven could be brought to the rescue, for a time at least, but the Government derives the bulk of its revenue from cocoa, and if the Government tries to help cocoa it will be like four small boys trying to lift a 20 ton locomotive, or I will put it this way, a man has a business and he allows his old father \$20.00 per month for his support, in the process of time he finds his business in a state of bankruptcy, and he goes to the old man and says, unless you carry me on I am ruined, but the cocoa proprietor will say imperatively, oh no, cocoa must go up, and we will pay, quite

so, hope on, hope ever, but that is purely a hypothetical conjecture, and if it fails the Government will cast its prospective eyes in all directions, and with its dominative style force those who have lived frugally, to pay in the future, for the prodigality of the past. I agree with every word Mr. Robinson said at the last meeting and I can assure this Society that I am not suffering from funk, or trepidation, if any one is suffering from those things it is the big mortgagee or the mortgagor or the expectant borrower. I don't believe that what the Governor of the Gold Coast said will materialize, I added 50 per cent. to it and still I don't believe it, for if I did, I would put down my cutlass at once, and seek my living in the land beyond the sea, for in Trinidad it is poverty, I would find, but as long as cocoa don't go below its present price, and I can make a fair crop, I am prepared to live from the proceeds of my estate and look the whole world in the face, like the Village Blacksmith. I haven't got anything to say about Licensed Cocoa valuers, I have'nt anything to say about honest men or rogues, but experience have taught me that a man never knows what he will do until the occasion arises, remember what David did when he was hungry, and I read that in the Franco Prussian war Napoleon marched out of Paris with great pomp and splendour and in a very short time was seen drinking out of a station master's cup in a small station. It is my opinion that this Society should be very careful how it approaches the Government. The Society advised the Government to assist the cocoa planters, and the Government refused, a few months after the then Attorney-General advised the Government to do the same thing and the Government accepted his advice at once, so that is conclusive proof that the Government puts more confidence in an official member of the Council, who is not an Agriculturist, than in the whole Agricultural Society combined, which is supposed to represent the Agricultural industry of the country. We advised the Government to have a labour bureau, it is not only a fiasco, but a proverb and byword. You ever saw advertised any hoe

labourers, any forkers, any drainers, any cutlass men, any Cane-cutters, but seamstresses, yard boys, watchmen, drivers and overseers, why if I was to advertise for watchmen, drivers or overseers, in three days I would have so many applicants in my yard that I would have to get the police to put them out, the real agricultural labourer is at a premium, he has more work than he can do, and if he was forced to live in Port-of-Spain he would feel like an agouti that was caught in Guayaguayare forest and brought and let go in Frederick Street the day before Christmas, we advised the Government to stop the use of red clay, I shan't say much on that, because I admit that it was abused, suffice it to say, that since the use of clay have been stopped, cocoa have steadily gone down, the planter have lost, because it is cheaper to work cocoa with clay, the Government have got some money in fines, and I believe some cocoa too, and then the American manufacturer tells the dealer that he must mill his cocoa and when that is done, and the cocoa is sent over, the manufacturer tells the dealer that he can't pay for it as estates for all the beans are not the same colour, then we have the English manufacturer inquiring for Trinidad plantation clayed cocoa, for these reasons I say this Society should be careful in approaching the Government. Some time ago, Mr. Huggins said at a Town Board Meeting that this country was on the brink of a precipice, I had never spoken to Mr. Huggins but the day before I was at Mr. Pujadas' office about some business and I told him I did not care to do it as my opinion was that this country was on the brink of a precipice, I now say that it is three-quarters down the slope of a steep mountain and nothing short of a miracle can prevent it going to the bottom. At the bottom is a dark vista, and whether there is silk cotton or feathers to break the fall I don't know, but I believe that we will find broken flint stone and steel-filings, and we will see written there in letters of fire, the only way to get to the summit again is by frugality and industry. Now, gentlemen, my advice is that we should not go on whining and running after

the Government like a set of lackeys, but do what some of us never done before and that is work and quit ourselves like men, and face the situation like heroes. When the King of the universe said Man should live by the sweat of his brow he did not mean the sweat of his brow playing lawn tennis, but tilling the earth, but all work and no play is as bad as what we have at present, that is all play and no work. I conclude by saying let us approach all things with moderation.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

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COMMITTEE MEETING.

Minutes of the Meeting of the Committee of Management, held in the Council Chamber, on 5th July, 1923, at 2 p.m.

Present : W. S. E. Barnardo in the chair, Hon'ble. A. B. Carr, Rev. H. Morton, Messrs J. Knox, M. Moody-Stuart, G. A. Jones, C. B. Rojas, S. Medford, Captain Gooden-Chisholm, W. G. Freeman, A. A. Sobrian, G. C. Wyatt, A. V. Stollmeyer, C. Fleming, E. A. Robinson, F. Le Blanc, E. Radcliffe Clarke and L. de Verteuil, Secretary.

The Hon'ble R. G. Bushe and Dr. Gibbon, were present.

Minutes.— The Minutes of the Meeting of 10th May were confirmed.

The meeting was specially convened for the purpose of hearing the Hon'ble. R. G. Bushe on the subject of the Agricultural Bank as recommended by the Govern-

ment Committee of which, Mr. Bushe was the Chairman. Mr. Bushe explained the scheme and answered questions put to him and after two hours of discussion the matter was adjourned to the General Meeting to be held on the 12th July.

The minutes of the General Meeting of 12th July contain the result of the deliberations.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

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REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

WINDWARD (ROXBOROUGH) TOBAGO.

At a general meeting of the above Society held on the 19th July, 1923 at the Roxborough Court House the following members were present :—J. B. Murray, Esq., Deputy Chairman, Acting Chairman, A. Jones Esq., Vice-Chairman, Messrs. H. Fraser, N. Helder, R. Davidson, Leofroy Hercules, A. Davidson, Robt. Douglas, Leoni Hercules, C. Jack, N. McCony and F. J. B. Murray, Hon. Secretary.

Mr. Murray in formally opening the meeting said that he was very glad to see that the Chairman, Rev. E. Pilgrim had returned to Tobago, after a period of illness which necessitated his absence from the Colony and to welcome him back.

Minutes :—The Secretary was then called upon to read the Minutes of the last meeting. After the reading they were confirmed on the motion of Mr. N. Holder, seconded by Mr. N. McCony and unanimously carried.

Correspondence :—The Secretary read the accounts of the Society with the Parent Society and Messrs. Yuille (printers).

The subject for the evening had to be postponed again owing to the absence of the Agricultural Advisor. It was stated that the Advisor was rather busy judging Competitions, and that, no doubt, was the cause of his not being present. The meeting regretted his absence.

Planting of Vegetables :—Mr. H. Fraser gave an impromptu lecture on the planting of vegetables. He spoke on (a) The Preparation of the Land (b) The Nursery Boxes, (c) Transplanting. (d) Care in Selecting Seeds.

He kept the meeting well interested and all have profited by the lecture.

Various questions were asked and all were answered by Mr. Fraser to the best of his experiences.

A vote of thanks was moved by Mr. Murray, seconded by Mr. R. Douglas in favour of Mr. Fraser for his valuable hints. This was carried unanimously, Mr. Fraser accepting.

Motion :—Moved by Mr. H. Fraser, seconded by Mr. R. Davidson "that this Society ask Mr. Davies, the Advisor, to do his best to attend, as far as possible, all the monthly meetings of the Society,—as being the only agricultural expert in the island he would have a better opportunity of meeting most of the persons interested in agriculture at these meetings and would be able to give expert opinions on any question of agricultural interests that may come before the meeting." This was carried unanimously.

Notice of Motion :—Mr. Jones, seconded by Mr. H. Fraser to move :—

"That in view of the rising importance of the windward District of Tobago, this Society approaches the

Government through the Parent Society asking that a Hospital be built in the District."

Vote of Thanks :—There being no other business Mr. Fraser moved, seconded by Mr. C. Jack that a vote of thanks be expressed to the Acting Chairman for conducting the meeting. This was carried unanimously. The Chairman accepting.

The National Anthem brought the meeting to a close.

TACARIGUA.

Experiment Station,

St. Joseph.

24th July, 1923.

L. de Verteuil Esq.,

Secretary Agricultural Society,

Trinidad & Tobago..

Dear Sir,

I enclose the report of our Exhibition Committee on the Agricultural Show held by this Society on February the 17th this year together with a detail financial statement and the report of our auditors.

I regret that there has been so much delay in preparing and finally passing this report etc., but various causes beyond my control have contributed to this. I trust, however that they will be in time to appear in the next number of the "Proceedings"

Yours faithfully,

L. A. BRUNTON,

Hon. Secretary.

Mr. Chairman, Ladies and Gentlemen,

We have the honour to report that the Agricultural Show, the organization of which your committee had been engaged upon since August 1922, was successfully held on Saturday, February 17th this year.

In spite of adverse circumstances and several disappointments, we are glad to be able to state that the Show was a decided success both from a financial point of view and from that of the appreciation shown by visitors.

The financial statement which we are now able to lay before you shows that after all expenses have been paid and \$299.00 distributed in prizes a surplus of \$43.11 will remain.

Exhibits were received in all the five sections viz:—
A.—Stocks, B.—Sugar, Cacao &c., C.—Horticulture, D.—Floricultural, E.—Minor Industries, and in all the classes with the exception of the following, in Sections A. Class 7 **Cross bred Plymouth Rock.** B. Class 14 **Sugar Grey Crystals.** 15. **Muscovado Sugar,** 16 **Molasses Sugar from Yellow Crystals,** 21 **Light Red Cacao,** 22 **Sample of special strain of cacao.** C.—Classes 56.—2 **Grenadillas,** 57, 2 **Watermelons,** 70, 1 **lb. Cashewnuts (Roasted),** 76, **Collection of spices and condiments (Local),** while the exhibits in two classes in Section C 39 **Collection of Shelled Peas and Beans** and 64, **Collection of Fruits for Table use,** were disqualified for not meeting the requirements of the prize list.

The exhibits were numerous and generally of a high class, with the exception of exhibits in the following classes in Section A—4 **Barred Plymouth Rock Pair,** 6 **White Leuhorn Pair,** C.—46 **Lettuce—3 heads,** 77 **Collection of Sauces and Pickles (Local),** 79 **Collection of Fruit Syrup (Local)** 80 **Collection of Confiture and Jellies (Local),** the merits of which were below the standard set by the Judges for the award of first prize.

The sum awarded in prizes by your committee amounts to \$299.00 made up as follows:—

Awards according to prize list	.. ..	\$273.00
Extra prizes recommended by the Judges...		26.00
Total	.. ..	\$299.00

In addition four diplomas and eighteen certificates of commendation have been awarded.

The thanks of the committee are due, and are cordially extended to all those persons by whose valuable aid the exhibition was brought to a successful issue, and to all subscribers whose liberality ensured its financial success.

FINANCIAL STATEMENT.

By Grant in aid from Parent Society ..		\$300.00
To Advertizing P.O.S. Gazette and by Posters	\$ 17.48	
„ Printing, Posters, Entry Forms, Prize List &c	19.24	
„ Erecting Fences, Pens, Kiosks, &c.	20.10	
„ Prizes awarded Sections A, B, C.	244.00	300.82
		<hr/>
	300.82	\$2
REVENUE.	300.00	300.00
		<hr/>

Carried forward 82

By Subscription Lists, Mrs. F. E. Scott and W. Francis		74.08
„ Subscription Lists F. J. Mendez, L. A. Brunton		50.28
„ Subscription to Minor Industries Prizes—Mrs. W. G. Kay, V. X. de Verteuil		19.00
„ Subscription Floriculture Prizes—Hon. W. G. Kay, F. J. Mendes, A. Cory Davies		21.28
„ Collected at Gate \$50.52, Coconut Shies \$5.70		56.22
„ Refund on 14 quires Paper \$5.60 sold 3 quires 72c.		6.32
		<hr/>

EXPENDITURE. \$227.18

To Clerical Assistants, Gate keeper &c. \$10.00		
Stationery 88c.	10.88	
„ Preparing Building, Cartage, &c. \$41.90		
Lighting \$6.60	48.50	
„ Sundies, Brown Paper \$8.00 Twine, locks, nails &c.	10.19	
„ Spirit License	5.00	
„ Refreshments, Constables on duty and Band	19.75	
„ Refreshments Stewards and Assistants 2 days	17.30	
„ Miscellaneous Rosettes \$3.39, Fares		
Messengers &c.	6.55	
„ Prizes awarded in Section D. and E.	55.00	
„ Cost of attendance of 4 Constables	10.08	184.07
		<hr/>
	184.07	
Balance on hand	43.11	43.11
		<hr/>

\$227.18

L. A. BRUNTON,
Hon. Sec.

TACARIGUA DISTRICT AGRICULTURAL SOCIETY.

Statement of Accounts re Agricultural Show held on 17th February, 1923.

RECEIPTS		EXPENDITURE	
	\$	\$	\$
To Grant from Parent Society		By Advertising in Port of Spain Gazette	17 48
" Subscription Lists	124 36	" Printing Posters, Prize lists, and	
" Minor Industries	19 00	Entry forms	19 24
" Floriculture	21 28	Erecting Fence, Pens, Kiosks &c	20 10
" Gate Money	50 52	" Prizes in Sections A, B, and C.	244 00
" Coconut Shies	7 70		
" Paper	6 32	Prizes in Sections D. and E.	55 00
		" Clerical Assistance	10 00
		" Stationery etc.	8 88
		" Light	6 72
		" License (Occasional Spirit)	5 00
		" Refreshments (Constables and Band)	19 75
		" Refreshments (Stewards, &c.)	17 30
		" Constables on duty	10 08
		" Miscellaneous	8 62
		" Labourers, Cartage, etc.	41 90
		Balance carried down	43 11
			527 18

I beg to state that I audited the books and accounts of the Tacarigua District Agricultural Society re the Agricultural Show held on 17th February, 1923, and found them true and correct.

(Sgd.) WM. T. CUNNINGHAM.

18th June, 1923.

FYZABAD.

The regular monthly meeting of the Fyzabad District Agricultural Society was held on the 3rd July, 1923. Present were Messrs. C. Goberdhan, Nat. Goberdhan, C. Seulal, F. Bhola, S. Mohamed, Bissoon, H. Dookharan, Mungal, Gangabissoon Maraj, Bhagratee Maharaj, Mr. N. P. Gour was deputed to the chair and Mr. S. M. Harnarayan, Hon. Secretary.

Minutes.—There were no minutes of the previous meeting to be read as there was no quorum.

Agricultural Bank.—This Society was of opinion that the Agricultural Bank was the only thing to save the Peasants of the colony.

Appointment of Officers.—The death of our vice chairman and removal from the district of our secretary has caused the appointment of the following officers:—Vice Chairman, Mr. N. P. Gour, proposed by F. Bhola, seconded by A. Mohamed. Treasurer, F. Bhola, proposed by C. Seulal, seconded by C. Goberdhan. Secretary, Mr. S. M. Harnarayan, Assistant Secretary, Nat. Goberdhan proposed by C. Seulal seconded by F. Bhola.

General Business.—Mr. N. P. Gour read a most interesting report on the visit to Rivers Estate, which was adopted and kept on file in the Society's library.

The Secretary was directed to write the following gentlemen, Mr. Penna, asking him to visit our Society at its next meeting; Mr. Grant, asking him to be kind enough to let us have a sample of weedicide and information as to the use and to the Secretary of the Parent Society asking him to oblige us by inserting in the Proceedings the date and hour of our meetings. Their being no further business the meeting terminated.

TRINIDAD MONTHLY PRODUCE REPORT AND STATISTICS.

COMPILED BY EDGAR TRIPP & CO.

Port-of-Spain, 31st July, 1923.

CACAO.—Owing to a very limited demand from Europe and America, there has been a quiet market here with prices declining steadily. The small parcels of "Plantation" and "Middling Red" that have been offered recently, fetched from \$3.00 to \$8.25 and \$7.15 to \$7.25 respectively.

Reports from Venezuela state that there are still fair pickings to be reaped. Arrivals during the month, however, have been moderate, and the bulk of these are being held for better prices. To-day's value of this grade is about \$8.25 to \$8.50.

SUGAR.—At date, London prices have eased off slightly to 58/—60/— per cwt. and New York to \$6.97 per 100 lbs. Fair shipments have been reported during the month, but it is feared that the remaining stocks will be required for local consumption.

Heavy rains have fallen lately but have not been so severe as to damage the young cultivation.

MOLASSES.—Shipments totalling 4,364 gals. have been made, bringing the total to date to 86,832 gals. There are still, however, large stocks on hand for disposal.

COCONUTS.—Selects were sold locally at the slightly increased price of \$16.00 per 1,000 but Culls remained at \$9.00 with a weak market.

COPRA.—The market opened at \$4.50 per 100 lbs. but dropped to \$4.15 during the later part of the month. Fair shipments, however, continue to go forward to the U.K. and other consuming markets.

THE AGRICULTURAL SOCIETY.

CACAO.

Shipments of Trinidad Cacao During the Month of
July, 1923.

Destination.		Weight in lbs.
To all countries	.. ..	4,413,221 ..
Shipped previously	.. ..	52,421,100 ..
		<hr/>
Total from 1st January	.. ..	56,834,321 ..
To same date 1922	.. ..	37,940,154 ..
„ „ 1921	.. ..	55,158,489 ..
„ „ 1920	.. ..	53,379,208 ..
„ „ 1919	.. ..	51,369,624 ..
„ „ 1918	.. ..	41,813,394 ..
„ „ 1917	.. ..	63,759,928 ..
„ „ 1916	.. ..	44,017,362 ..
„ „ 1915	.. ..	42,877,872 ..
„ „ 1914	.. ..	57,606,311 ..
„ „ 1913	.. ..	41,194,685 ..
„ „ 1912	.. ..	37,412,876 ..
„ „ 1911	.. ..	38,637,754 ..
„ „ 1910	.. ..	43,026,466 ..
„ „ 1909	.. ..	37,849,833 ..

London Quotations for Ordinary:—

1st July, per cwt.	.. ..	52/—54/—
17th „ „ „	.. ..	50/—52/—
24th „ „ „	.. ..	48/—50/—
26th „ „ „	.. ..	47/—49/—
31st „ „ „	.. ..	47/—49/—

To same date 1922	..	..	67/— 68/—
" " 1921	..	..	55/— 58/—
" " 1920	..	..	120/— 105/—
" " 1919	..	..	124/— 127/—
" " 1918	..	..	90/—
" " 1917	..	..	85/— 86/—
" " 1916	..	..	85/— 86/—
" " 1915	..	..	79/— 82/—
" " 1914	..	..	58/— 57/—
" " 1913	..	..	73/— 71/—
" " 1912	..	..	69/— 72/—
" " 1911	..	..	57/— 58/—
" " 1910	..	..	55/—
" " 1909	..	..	56/— 54/—

New York Quotations :—

1st July, per lb.	..	..	8½c.
24th " " "	..	..	8¾c.
31st " " "	..	..	8½c.
At same date 1922	..	..	11¼c.—12½c.
" " 1921	..	..	7¼c.— 7¾c.
" " 1920	..	..	18¼c.
" " 1919	..	..	23¾c.—26½c.
" " 1918	..	..	12c. —14c.
" " 1917	..	..	14c. —15¾c.

SUGAR.

Shipped for the Month of July, 1923.

To all countries	..	..	1,886,514 "
Shipped previously	..	..	69,592,971 "
Total from 1st January	..	..	71,479,485 "

To same date 1922	..	..	100,332,169	..
.. .. 1921	..	..	69,411,765	..
.. .. 1920	..	..	101,204,089	..
.. .. 1919	..	..	75,895,639	..
.. .. 1918	..	..	72,154,203	..

L.

London Quotations for Demerara Crystals:—

1st July, per cwt.	..	..	59/—61/6
24th .. ..	..	..	58/—60/—
31st .. ..	..	..	58/—60/—

At same date 1922	..	..	42/— 44/6
.. .. 1921	..	..	49/— 51/—
.. .. 1920	..	..	150/—135/—
.. .. 1919	..	..	57/9— 82/—
.. .. 1918	..	..	57/9
.. .. 1917	..	..	46/9
.. .. 1916	..	..	40/1½—43/1½
.. .. 1915	..	..	24/— 27/6
.. .. 1914	..	..	12/3— 14/—
.. .. 1913	..	..	14/— 14/9
.. .. 1912	..	..	16/6— 17/9
.. .. 1911	..	..	15/— 17/—
.. .. 1910	..	..	17/9— 18/9
.. .. 1909	..	..	14/6— 15/3

New York Quotations, Crystals:—

1st July per 100 lbs.	..	7.91
7th .. ..	..	7.50
10th .. ..	..	6.91
12th .. ..	..	7.09
19th .. ..	..	6.78
21st .. ..	..	7.28
24th .. ..	..	6.91
31st .. ..	..	6.97

At same date 1922	..	..	4.73	—	5.36
„ „ 1921	..	..	4.00	—	4.61
„ „ 1920	..	..	18.31	—	16.30
„ „ 1919	..	..	7.28		
„ „ 1918	..	..	6.00½		
„ „ 1917	..	..	6.00	—	7.02

MOLASSES.

Shipped for the Month of July, 1923.

To all countries	..	..	4,364	gals.
Shipped previously	..	..	82,468	„
Total from 1st January	..	..	86,832	„

To same date 1922	..	..	106,870	„
„ „ 1921	..	..	57,471	„
„ „ 1920	..	..	405,447	„
„ „ 1919	..	..	204,557	„
„ „ 1918	..	..	270,032	„

RUM.

Shipped for the Month of July, 1923.

To all countries	..	..	Nil.
Shipped previously	..	..	22,016 „
Total from 1st January	..	..	22,016 „

At same date 1922	..	..	22,827	„
„ „ 1921	..	..	161,224	„
„ „ 1920	..	..	29,431	„
„ „ 1919	..	..	104,573	„
„ „ 1918	..	..	122,656	„

COCONUTS.

Shipped for the Month of July, 1923.

To all countries	748,420 nuts.
Shipped previously	5,998,410 ..
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Total from 1st January	6,746,830 ..
To same date 1922	10,812,819 ..
" " 1921	11,693,826 ..
" " 1920	14,410,889 ..
" " 1919	..	..	17,285,010 ..
" " 1918	..	..	12,050,982 ..
" " 1917	..	..	8,184,522 ..
" " 1916	..	..	8,772,960 ..
" " 1915	..	..	6,391,994 ..
" " 1914	..	..	10,117,652 ..
" " 1913	..	..	7,697,827 ..
" " 1912	..	..	9,101,123 ..

COPRA.

Shipped for the Month of July, 1923.

To all countries	1,013,200 lbs.
Shipped previously	6,803,005 ..
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Total from 1st January	7,816,205 ..
To same date 1922	5,208,478 ..
" " 1921	2,101,410 ..
" " 1920	1,055,010 ..
" " 1919	..	..	1,553,467 ..
" " 1918	..	..	3,385,558 ..
" " 1917	..	..	3,995,415 ..
" " 1916	..	..	1,863,781 ..
" " 1915	..	..	2,742,648 ..
" " 1914	..	..	830,346 ..
" " 1913	..	..	789,318 ..
" " 1912	..	..	1,971,012 ..

ASPHALT.

Shipped for the Month of July, 1923.

To all countries	..	..	13,261 tons
Shipped previously	..	..	82,041 ..
<hr/>			
Total from 1st January	..	..	95,302 ..
To same date 1922	..	..	77,316 ..
„ „ 1921	..	..	63,250 ..
„ „ 1920	..	..	56,859 ..
„ „ 1919	..	..	35,663 ..
„ „ 1918	..	..	22,254 ..
„ „ 1917	..	..	53,056 ..

OIL.

Shipped for the Month of July, 1923.

To all Countries	2,205,127 gals.
Shipped previously	50,963,472 ..
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Total from 1st January	53,168,599 ..
To same date 1922	24,198,830 ..
„ „ 1921	24,327,099 ..
„ „ 1920	..	..	21,564,786 ..
„ „ 1919	..	..	27,968,889 ..
„ „ 1918	..	..	22,677,734 ..
„ „ 1917	..	..	18,558,499 ..



Rainfall for Ju'y, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		ERIN		KING'S BAY TOROAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1	...	12	1	20	...	...	...	...
2	...	02	...	21	...	...	...	...
3	...	14	...	...	...	...	...	...
4	...	33	...	20	...	...	...	87
5	...	09	...	...	...	...	...	23
6	10	...	...	...	18
7	...	03	...	...	...	...	...	25
8	10	...	...	...	...
9	06
10	...	04	...	...	...	...	...	06
11	...	21	...	35	...	...	...	88
12	...	05	...	18	...	...	...	...
13	1	07	...	30	...	...	1	52
14	2	05	...	04	...	...	...	...
15	...	04	...	...	...	...	...	02
16	...	03	...	20	...	...	...	30
17	...	37	...	...	...	...	...	10
18	...	86	...	...	...	...	...	53
19	22	...	...	...	...
20	10	...	...	...	...
21	...	22	...	...	...	...	...	...
22	...	45	...	90	...	...	...	10
23	...	18	...	30	...	...	...	87
24	1	07	...	05	...	...	...	77
25	...	43	...	68	...	...	...	82
26	1	03	...	10	...	...	...	...
27	...	03	1	11	...	...	...	...
28	1	15	...	13	...	...	...	61
29	...	92	...	47	...	...	...	...
30	...	03	1	17	...	...	...	02
31	...	85	...	...	...	...	1	03
TOTAL.	11	81	8	21	...	...	8	72

Note— July		1922	...	...	...	8	.00
"	"	1921	...	...	...	11	.03
"	"	1920	...	...	...	8	.38
"	"	1919	...	...	...	7	.00
"	"	1918	...	...	...	19	.90
"	"	1917	...	...	...	23	.59
"	"	1916	...	...	...	8	.23
"	"	1915	...	...	...	11	.48
"	"	1914	...	...	...	6	.50
"	"	1913	...	...	...	5	.05
Years—Total		1922	(at Lewisville)	...	...	81	.16
"	"	1921	...	...	...	78	.79
"	"	1920	...	...	...	59	.07
"	"	1919	...	...	...	60	.19
"	"	1918	...	...	...	70	.58
"	"	1917	...	...	...	78	.64
"	"	1916	...	...	...	69	.41
"	"	1915	...	...	...	70	.57
"	"	1914	...	...	...	54	.86
"	"	1913	...	...	...	65	.85

PAMPHLET SERIES.

*The following can be had at the Office of the Society,
5 Chacon Street.*

- | | |
|--|--|
| 263 Cacao Cultivation Reports
on Shades | O. W. Barrett. |
| 266 Cacao Special Report on
General Culture | O. W. Barrett. |
| 279 The West Indies and Canada | West India Committee Cir-
cular |
| 280 Cacao Pests of Trinidad
Final Report | O. W. Barrett. |
| 324 Fungus Disease of Cacao | F. A. Stockdale. |
| 280 Cattle in Trinidad with
special references to
Breeding | Report by a Select Com-
mittee of the Society. |
| 390 The Witch-Broom Disease of
Cacao Translated | Mr. C. J. J. Van Hall. |
| 404 Sunlight and Fungi | Mr. C. J. J. Van Hall. |
| 405 Library of the Agricultural
Society 1st Jan. 1910 | Secretary. |
| 422 Indentured Labour and Pre-
ventable Diseases | Dr. George H. Masson. |
| 426 Selection and the Cacao
Industry | Dr. A. Fredholm |
| 435 Krulloten Disease in Wild
Cacao | Mr. C. J. J. Van Hall. |
| 439 The Pollination of the
Cacao Flowers | Mr. H. A. Caracciolo |
| 440 A Collection of Fossils from
Couva | R. J. Lechmere Guppy. |
| 442 The Green Muscadine of
Froghoppers | Mr. J. Birch Rorer, M.A.
Report by Select Committee |
| 443 Fowl Ticks | Dr. P. J. S. Cramer. |
| 449 The Culture of Hevea | R. Lechmere Guppy. |
| 453 Notes of some Cacao Pests | W. C. Jardine. |
| 457 Soil Problems for Cacao
Planters | Dr. A. Fredholm. |
| 467 Recent Addition to Insect
Fauna in the West Indies | Dr. A. Fredholm. |
| 477 Influence of Mosquitoes on
Birds Life | T. H. Elliott. |
| 480 International Agricultural
Institute in Rome | Mr. J. J. A. Carlee |
| 483 Sugar Cane Nurseries | By a Member. |
| 485 The Planters, A.B.C. | Mr. W. C. Jardine. |
| 486 Change of Leaf in Cacao | |
| 494 Remarks on the Cultivation
on Yams | Rev. H. Morton. |
| 499 Agricultural Education in
Trinidad | Dr. A. Fredholm. |
| 504 Agricultural Education | Prof. H. E. Hendrickson. |
| 505 The King of the Woods
(Momothus Bahamensis) | Mr. A. B. Carr. |
| 516 What are we going to do
about the Froghopper? | J. J. Carlee. |

- 520 Further Note on the Caroni Series at Savaneta
 526 The Practice of Renewal of Chupons
 528 Rules and Regulation by District Agr. Society
 529 Lessons from the Drought
 539 The Silk Industry
 532 Agricultural Revolution by the New Cult
 545 Agricultural Contracts
 548 Ticks
 562 Higher Agricultural Education Part
 564 Agricultural Development in the West Indies
 573 Tuberculosis
 609 Ankilostomiasis
 610 Lime Cultivation Diseases and Pests
 611 An Experiment in Timber Plant Tobago
 618 Agricultural and Industrial Exhibition
 622 The Influence of War on Tropical Agriculture
 632 Round Tobago
 633 Rhinoceros Beetles
 634 Report on the Inoculation of Locusts in Cocobacillus Aeridiortum
 644 Notes on the Budding of Cacao in Trinidad
 655 Theobroma Cacao
 657 Leguminous Plant
 660 Causes of Emigration from the Colony
 662 Why Cacao Hybuds and not varieties
 666 Lime Industry
 667 Manurial and other Experiment on Cacao
 669 Inherent Characterists of Theobroma Cacao and a summary on Cacao Experience
 676 Cacao disease in Ecuador
 683 Our Food Possibilities
 684 Plant Breeding and the Pollination of the Cacao Flower
 685 Moon's Influence on the earth and Plant
 693 The present position of the Citrus Industry in Trinidad & Tobago
- R. J. Lechmere Guppy.
 Dr. A. Fredholm.
 Affiliated with the Agr. Society of Trinidad and Tobago.
 Dr. A. Fredholm.
 C. Glaudon.
 Mr. H. Vincent.
 Report of Cocoa Committee.
 G. N. Walcott.
 Adopted at a meeting of the Society.
 Prof. H. E. Hendrickson.
 Dr. Geo. Masson.
 Col. J. R. Dodd.
 Mr. W. G. Freeman, B.Sc.
 R. S. Reid.
 Report of Joint Executive Committee.
 Mr. W. G. Freeman, B.Sc.
 Report by Sec. submitted to the Society.
 F. W. Ulrich.
 J. Birch Rorer.
 Mr. W. G. Freeman, B.Sc.
 F. E. Olivieri
 W. E. Broadway
 E. Gransaul.
 Mr. F. E. Olivieri.
 Dr. A. H. McShine.
 E. Radcliffe Clarke
 F. E. Olivieri.
 Prof. A. N. Martin
 A. B. Carr.
 F. E. Olivieri
 G. H. Nunez.
 W. E. Broadway

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705 Remarks on a Drastic Treat-
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781 The Common Internal Para-
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782 Conversion by Top-Working
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Avocados into good Trees.
785 Kitchen Garden with Special
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toes and Beans.
786 Insect Pests of Cabbage,
Tomatoes and Beans.
787 Some Common Diseases of
Kitchen Garden Crops
788 Notes on Cacao Experimental
Work at River Estate
791 Ticks and Their Control
793 Notes on Agricultural Re-
quirements of Coconuts
794 Records of Crops and Yield
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and San Antonio
Cacao Estates
795 Ants in relation to Agriculture
796 Pig Rearing
- F. D. Davies.
J. Birch Korer.
Sir Norman Lamont.
Atis. Agostini.
Paul Ad Serre.
F. W. Ulrich.
F. D. Davies.
R. A. Francis.
H. Meaden.
Rev. H. Morton.
Mr. W. G. Freeman, B.Sc.
Mr. W. G. Freeman, B.Sc.
Geo. C. Payne, B.A., M.D.
Mr. W. G. Freeman, B.Sc.
Wm. Nowell.
Mrs. F. E. Scott.
Dr. Geo. Masson.
F. W. Ulrich
Jos. de Verteuil
Frank Stell.
Capt. H. Metivier.
R. O. Williams.
R. O. Williams.
F. W. Ulrich.
F. Stell.
L. Seheult.
Capt. H. V. Metivier, B.Sc.,
M.R.V.S.
F. Stell.
C. P. Rojas.
F. W. Ulrich.
Capt. H. V. Metivier, B.Sc.,
M.R.C.V.S.

Proceedings of the Agricultural Society.

AUGUST, 1923.

EDITOR'S NOTES AND CLIPPINGS.

Subscription:—The subscriptions to the Agricultural Society, for the current year that are still outstanding, are nine months overdue. The Secretary will be obliged for an immediate settlement.

(o)

THE AGRICULTURAL BANK.

The latest despatch of the Secretary of State for the Colonies on the Agricultural Bank question brings a ray of hope to many Planters who were despairing of the future. It is not a panacea that will cure all the financial ills from which they are suffering, but for many, it will help to tide over the difficulties which weigh so heavily on them.

For the fourth year in succession, the Cacao Planters in the Colony are realizing for their produce such a low price that in great many cases it is not possible to meet the cost of production, much less, to meet interest on mortgages for those who are encumbered or to obtain a

living margin. The same care and attention cannot be given to the cultivation and this must have a detrimental effect on the crops.

It is a notable fact that Cacao is the main staple of the Colony and affects so many interests directly or indirectly, that if for one reason or another, the crops are bad or the prices are low, this at once reacts on the finances of the Colony and the revenues from such sources as the Customs, the Excise, the Railway are cut short, as it happens at the present time. This being the case, some measure of relief becomes necessary for the general good. Loans are often raised for Public Works on other enterprises of public utility and are charged on the Assets of the Colony, surely this is a sufficient reason that Agriculture which is the largest industry and the back bone of the Island, should be treated in the same way and this is one of the ends proposed by the Agricultural Bank Scheme.

The debate on the Agricultural Bank, which lately has been occupying the attention of the Agricultural Society was properly carried out and ample opportunity was given to the opponents of the Scheme to express their views, so that it can be said, that the proposed Bank as approved by the Secretary of State, has been thoroughly considered by the Agricultural Society and at its last meeting the following resolution was carried with only three dissentient voices:

“That this Society approve of the establishment of an Agricultural Bank as sanctioned by the Secretary of State for the Colonies in his latest despatch and pledge its support to the Government in carrying out the measure and place on record its appreciation of the interest taken in and the work done by His Excellency Sir S. H. Wilson towards its establishment.”

For a long number of years, the Agricultural Society have been consistently promoting the usefulness and the necessity of such an Institution in the Island and it is highly satisfactory that the Cause has at last been won.

It is to be hoped that now that an early start is in view under favourable auspices and that the principle of loans on properties under an amortization Scheme, and after new valuations have been carefully made, is admitted, the Bank, in a short time, will be able to extend its scope of usefulness to include loans of over £2,000, to which it is limited for the present.

The Colony owes a debt of gratitude to Sir S. H. Wilson for the part he has played in the transaction which resulted in convincing the Secretary of State of the necessity of the Bank, nor should it be forgotten that the Hon'ble R. G. Bushe, C.M.G., as Chairman of the Relief Ordinance and as Advisor to the Government contributed in no small measure to its success.

Following is the despatch from the Secretary of State:

Downing Street,
1st. Augst, 1923.

TRINIDAD,
No. 1290.

Sir,—With reference to my telegram of the 18th April, I have the honour to inform you that I have caused the question of the establishment of an Agricultural Bank in Trinidad to be discussed with Sir Samuel Wilson, and that as a result of the discussion, I have decided, subject to the consent of the Legislative Council, to approve the proposal for the establishment of such a Bank with a capital limited to £250,000; upon the conditions contained in paragraph 16 and 17 of Sir Samuel Wilson's despatch No. 121 of the 27th March, and upon the further stipulation that the sum of £25,000 out of the capital of £250,000 should be placed to reserve from the inception of the scheme and should not be employed otherwise without my consent.

2. It is, of course, understood that the system of agricultural relief constituted by the Agricultural Relief Ordinances will be terminated as soon as possible.

3. Both Sir Samuel and myself appreciate that the present proposal is not free from financial risk, although that risk is far smaller than was involved in the former proposals, but we are agreed that it appears desirable that the risk involved in the present proposals should be accepted in the belief that the new Bank will be of material assistance in enabling the largest industry of the Colony to survive a time of severe depression.

4. You will no doubt cause the drafting of the necessary legislation to be taken in hand and will proceed with the working out of the details of the scheme so that they may be ready for the Governor's consideration upon his return to the colony.

I have the honour to be,

Sir,

Your Most Obedient, Humble Servant,

(Sgd.) DEVONSHIRE.

The Officer Administering

The Government of Trinidad.

Paragraphs 16 and 17 referred to in the despatch of the Secretary of State, read as follows:

16. If your Grace concurs in this proposal and sees no objection to the establishment of a Government Agricultural Loan Bank with a capital limited to £250,000 to lend money on first mortgage and on crops, I would suggest subject to the approval of the Legislative Council, my being allowed to establish such an institution on the following general lines.

17. The Capital of the bank to be limited to £250,000 to be raised by Government loans: the bank to be authorised to make loans on first mortgage and on crops: the amount of any mortgage on any one estate, until further experience has been gained, not to exceed £2,000 and the amount to be lent on the security of the crops

of any one estate not to be more than two-thirds of the estimated value of the crop and not to exceed £1,000; the bank to be administered by a Board, appointed and controlled by me, and only to make loans which would be a first charge on the estate and then only when it is proved to the satisfaction of the Board, with the help of the Agricultural Department, that the security is sound and that there is a good margin of safety.

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COST OF PRODUCTION AND YIELD OF CACAO ESTATES.

—————

In the present state of the Cacao Industry any information on the cost of production and on the yield obtained from Cacao Estates, in different parts of the combined Colonies which will show that with care and reasonable economy Cacao Estates can be carried on to survive the severe depression which threatens the industry with ruin will be welcome. Of course, plantations that are heavily encumbered will find it almost impossible to tide over their difficulties and unfortunately, in some cases, proprietors will have to face the loss of their properties, but there is no reason to despair of the future and everything that is possible must be done to maintain the Estates in proper cultivation, so that they may not deteriorate in value beyond what it is presently, due to the prevailing low prices.

There is no gainsaying the fact that for a very considerable number of years, the Industry has been the mainstay of the Colony and it still continues to be in that position. The great majority of the native families of the Island have for many past generations lived out of the proceeds of their Estates, have been able to bring up and educate their sons who fill the various civil, legal and medical professions and are good citizens and have thus contributed in no small measure, as well as by direct and indirect taxation to the prosperity of the Island.

We are indebted to Mr. R. S. Reid, proprietor of the "Hermitage" Estate, Tobago, who is also a keen agriculturist for the information he has so kindly put at our disposal, in the subjoined letter. It is not always possible to obtain Planters to divulge the results of the working of their Estates, but for the second time, Mr. Reid has shown what he is capable of doing on his estate. We must, at the same time mention Mr. C. P. Rojas, who contributed in the Proceedings of the month of May last a most interesting and valuable record of crops and yield for fifteen years obtained on his Cacao Estates in the Savana Grande district.

An average of not less than five years is of most value but it seems certain that 10 bags per 1,000 trees is about the absolute necessary output of a plantation capable of paying a competent manager and giving 7 to 8 per cent. interest on the capital invested.

If the West African Cacao Industry was more fully outlined and reliable information obtained as to yield, cost of production, state of cultivation, etc., confidence might be restored. It is very desirable that our Department of Agriculture should move in this important matter.

Hermitage,
Tobago,
23rd July, 1923.

Ludovic De Verteuil Esq.,
Secretary, Agricultural Society,
Port-of-Spain.

Dear Mr. De Verteuil.

Evidently my Estates Balance sheet for 1922 has aroused some interest and I now enclose returns to 30th June, 1923.

Mr. Rojas Statement is valuable and encouraging and I trust that Messrs. Cory Davies and E. A. Robinson will now publish their figures to prove that Cacao production in Trinidad is on its last legs as they so freely predict. The estimates by Officials of the Agricultural Department are also most interesting, altho the distribution of figures is more theoretical than practical, especially in that inevitable item called "Contingencies."

The conclusion thus far appears to be that, given ordinary market conditions, a Cacao planter can only expect a reasonable return for his labour and Capital if his trees yield an average of 3 bags of 165 lbs. per acre and that the average cost of production does not exceed \$10.00 per bag. I am optimist enough to believe that Cacao is a safe investment on these lines.

The only threatening element is Competition of West African Cacao, grown by the Natives on their own tribal lands, free of taxes, and for the present at least, of most of the incidental expenses of Civilization. Their industry is fostered by Government Experts, roads and railways and has evidently unlimited scope for expansion under same conditions. Our Department of Agriculture must know all about it, and might give planters the benefit of their knowledge of the economic conditions against which we are now contending.

If it be time that West African Cacao can be profitably delivered in Liverpool @ 30/- per cwt., then it is needless to promote an Agricultural Bank for the saving of the Cacao industry in Trinidad. The information one gets from Newspapers, Magazines, etc. is so scrappy and contradictory, that there ought to be an official statement available, now that the West Indian Cacao industry is entering its fourth year of depression, and so many planters are on the verge of ruin.

There may be some remedy in Co-operative selling and shipping as well as purchasing supplies, manures, etc., but the scheme of manufacturing our output does not

appeal to me—one never hears of wheat growers becoming Flour Millers or bakers of bread.

Yours faithfully,

(Signed) ROBT. S. REID.

TRINIDAD CACAO vs. WEST AFRICAN.

The prediction by the Governor of the Gold Coast that the African output of Cacao would increase 50% within the next few years and that the price would not exceed 35/— per cwt. landed in Liverpool, probably only 30/— implies rather a formidable threat of the biggest producer to extinguish other competitors, provided of course that the new loan for railways and roads is speedily floated in London. Whether it is advisable to go on extending Cacao growing in the Gold Coast to such an extent and to risk so much on Government Loans for the development of a single industry, regardless of the possibilities of disease, etc., is a question for the Home Government to decide. Although there may practically be no limit to output, there is certainly a limit to consumption. Even if all the world was at peace and normal conditions prevailed, it is very doubtful if the increased consumption predicted, could be absorbed without bringing about a collapse in prices. The Gold Coast workers with their cheap wages and other costs, could probably hold out better than producers in more civilized countries, but the Native's philosophy is no doubt "better do nothing, than work for nothing" and the extended net work of Railways might not, after all, be required, or prove to be a profitable speculation. So far as this colony is concerned, Cacao under the best possible conditions as to Soil, Cultivation and Labour, cannot be produced under threepence per lb. on the Plantation, i.e., no provision for interest or profit, bags or handling expenses for shipment. This equals about 37/6 per cwt. f.o.b. or about 41/— c.i.f. at present rates of freight. The prospects are far from cheerful and will need to be cleared up before considering Government loans or an Agricultural Bank.

HERMITAGE ESTATE—TOBAGO.

YEAR ENDING 30th JUNE, 1923.

EXPENDITURE.	INCOME
Staff and Superintendence	437 bags Cacao—165 lbs. net
Stock and groom	Equal \$13.35 per bag or \$8.90 per
Cultivation	110 lbs.
Reaping	Freight and charges T'dad. (equal
Manufacture	about 7½%) have been de-
Maintenance, Taxes, etc	deducted and figures are net
Advances to Contractors	proceeds.
Total equal \$11.85 per bag	
Working profit	
	\$5,837.58

About 35,000 Bearing trees equal 12.5 Bags per 1,000 trees or 3.75 per acic.

Note. This crop is 200 bags over 1922 and 100 bags in excess of previous best. Every possible economy has been exercised—no forking; very little expense on drains. Some landslips were caused by the heavy rains in November, 1922.

“Cultivation” includes work on backward fields taken over from Contractors.

HERMITAGE ESTATE—TOBAGO.

YEAR ENDING 30th JUNE, 1923.

		Cost Per Bag.
Manager's Salary	912.00	
Overseers & Watchmen	556.10	3.36
Cultivation—Brushing & Weeding	550.60	
Pruning	415.75	
Supplying	322.31	
Drains	163.56	
Forking	1452.22	3.32
M Nurseries \$17.07 & Vermin \$110.35.....	127.42	.29
Live Stock Grown pastures 19.80	169.97	.40
M Supplies—Tools Bags etc.	207.12	.47
M Taxes—Licenses, etc.,	240.82	.55
M Roads & Windbreaks	195.62	.46
M Repairs to Buildings	147.07	.31
Reaping	767.14	1.76
Drying, Bagging & Crooking	275.50	0.63
Advances to Contractors	131.63	0.30
	<u>\$5182.61</u>	<u>\$11.85</u>
437 Bags Cacao @ 13.35 165 lbs. Net (sold)	5837.58	13.35
	<u>\$654.97</u>	<u>\$ 1.50</u>

T'dad. freight Comn.—\$1.12 per bag or 7½% on present prices.

Memo (personal) Crop 200 bags over 1921-22—100 bags better than previous best.

Strict economy exercised in everything. Managers Salary charged for comparison, but the owner managed himself to avoid expense.

PLOUGHS FOR RICE LANDS.

WE have ordered, to arrive in February, a number of small Ploughs suitable for use on Rice Lands where often only one animal is available.

The Ploughs are International and therefore need no recommendation as to their worth.

As a great many of them have already been booked we would ask those who will be wanting any for the coming Planting Season to get into touch with us at once.

5—7 INCH SIZES.

Repair Parts Always in Stock.

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TELEPHONE 55.

The average crop of the five years 1913-18—263½ bags of 165 lbs.

The average crop of the five years 1918-23—277 bags of 165 lbs.

The Estate is situated in the Ward of "Turure," County of St. Andrew's at about 4½ miles from the Sangre Grande Railway Station. The land is mostly flat, protected North and East by hillocks of a sandy formation, on which Coconut palms are planted. The arable nature of the land is a sandy loam and is well watered by rivulets.

The area is made up of :

100 acres under Cacao	24,500 Bearing trees
	2,500 Half ,,
	2,850 sup. and missing
	<hr/>
	29,850
	<hr/>
30 ,, ,,	Coconuts (mostly young)
5 ,, ,,	Pastures
<hr/>	
135 ,,	
<hr/>	

221

Trees are planted 12' x 12' and are 25 to 30 years old for bearing trees. Yield per 1,000 trees—11 bags of 165 lbs.—3½ bags per acre from bearing trees. The cultivation was thickly shaded by the "Bocare" Immortelle, but this has been reduced by 50%. The average yearly rainfall is about 85".

\$20,000 of incumbrances were paid off and the Estate is now practically free from all incumbrances.

The average cost of production works out at :—

		Cost per bag.
Supervision	\$ 450	\$1.66
Stock	161	0.60
Cultivation	1,060	3.92
Picking and gathering etc.	472	1.74
Manufacture, garbling, etc	243	0.90
Transport and Railway fares	80	0.30
Repairs to Buildings, roads	40	0.14
Taxes and Fire Insurance	58	0.21
Sundries and advances to Contractors	75	0.28
	<hr/>	<hr/>
	\$2639	\$9.75
	<hr/>	<hr/>

The details of cultivation are :

Cutlassing	\$0.78	per bag.
Trimming and Pruning	1.08	" "
Draining	0.88	" "
Rd. Ridging, weeding, supplying etc..	0.96	
Coconuts (2,500 trees)	0.22	
	<hr/>	
	\$3.92	
	<hr/>	

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NOTES ON MALARIA.

In February, 1915 Doctor C. F. Lassalle, M.D. delivered at the Agricultural and Industrial Exhibition, Port-of-Spain, a most interesting and instructive lecture on Malaria and this was printed as Society Paper No. 613.—There are no more copies of this paper and as the matter is one of recurring importance and so useful to Agriculturists of the Colony and wherever labourers are employed, we have come across some notes on Malaria, which appeared in the Journal of the Board of Agriculture of British Guiana and they bear the approval of the Surgeon-General, Dr. K. S. Wise. We got his sanction to reprint them in the Proceedings. We hope to

reproduce Doctor Lassalle's paper in a future number of the Proceedings. Doctor Eric de Verteuil, Medical Superintendent of the Asphalt Lake Company of Brighton has successfully employed an economic system of drainage, which prevents the carrier of the parasites of Malaria viz: the "Anopheles" Mosquito from breeding near houses. The bottom and sides of the ordinary earthen drains are coated with hot crude petroleum mixed with pitch and sand, which forms a hard and smooth surface with a natural level permitting of no water to stagnate and the sides are always kept free from grass and from caving in. This is very much cheaper than concrete drains and is as effective.

In the "Lancet" of September 29, 1917, Christy of the Royal Army Medical Corps tells us that soldiers as well as medical men must know how to prevent malarial infection, and that with this aim in view the following facts have been collected for the instruction of officers and men : *They are equally useful to the agriculturists of Trinidad.*

1. Malaria is a parasitic, infectious, epidemic disease, conveyed from one person to another by the agency of mosquitoes .

2. The microscopic parasite causing it lives and develops in the corpuscles of the blood of man, and in the body of the mosquito.

3. There is no evidence to show that it can exist in any other animal or possibility of its existing free in nature.

4. When blood containing the parasite is sucked up by the mosquito from a person recovering from an attack of "fever," the parasites develop and multiply in the body of the insect, and after three to five days may be injected by it through the skin into the blood of other men, causing, after an interval of eight to ten days, all the train of symptoms known as malaria fever.

5. *The Malaria Parasite*—Shortly after the mosquito bite and the arrival of the parasites in the bloodstream they enter and commence development within the corpuscles.

6. After an interval of a few days the parasites have so multiplied in the blood of the person bitten that an attack of fever sets in, the length of the interval mainly depending upon the number of bites, the number of parasites injected, and the temperature prevailing.

7. The fever may therefore not commence until the person is many miles from where he was bitten.

8. After an untreated attack has run its course the fever subsides and the microscope no longer shows active parasites within the corpuscles, but there still remain in the body two forms of the parasites : (a) Latent or resting forms in the liver, spleen, etc (b) Specialised crescentic forms in the general circulation.

9. (a) The latent or resting forms retire after the attack from the general circulation and remain inactive in the liver, spleen, etc., until perhaps the treatment is relaxed, or till such time as the resisting power of the individual is lessened by chill, sun exposure, exhaustion, or other causes, when they may return to the circulation and again become active within the corpuscles, producing a relapse and a return of the patient to the hospital.

10. The relapse has most of the features of the primary attack with all its train of symptoms and ill effects.

11. (b) The crescentic bodies are not formed until the attack has run its course.

12. They remain in the general circulation beneath the skin for weeks, causing no symptoms, but when sucked into the stomach of certain species of mosquitoes they at once become active, and after certain changes pass from the stomach contents into the stomach wall, multiply enormously, and eventually invade the salivary glands of the insect, from whence

they are injected during the act of sucking into the blood of man as fever-causing parasites. The mosquito has the power at the moment of sucking of injecting through a special tube in its proboscis an irritating salivary secretion probably for the purpose of preventing premature coagulation of the blood.

13. Only the crescentic bodies are capable of infecting, and developing in, the mosquito, and not the active forms of the parasite as seen in the corpuscles during the attack.

14. If after some weeks the crescentic body has not found its way to the mosquito's stomach it may die, or it may retire from the general circulation to the liver or spleen, where it can remain without causing symptoms for a long time. But any severe constitutional disturbance, from a warm to a cold climate, may result not only in these bodies reappearing in the circulation, but in their having the power to multiply and produce a crop of active fever causing parasites, and what is known as recurrent attacks even after the lapse of two or three years.

15. As in the case of the relapse, the recurrent attack has most of the features of the primary attack, and any one returning say to South America and suffering from a recurrent attack, even in a district hitherto free from malaria and years after his return may become a danger to his friends, or even the nucleus of an epidemic, if the right kind of a mosquito happens to be an inhabitant of the neighbourhood and if mosquito-net precautions are not thorough.

16. *The Mosquito*.—Only the female mosquito has the power of sucking blood, the male subsisting upon the juice of plants, fruit, etc.

17. Not all species of mosquito can convey malaria. The majority of the common species are harmless (except those which transmit yellow fever, elephantiasis, etc.)

18. The few species which are capable of conveying it belong to the class Anophelinae, all of which are fragile insects not easily seen, comparatively silent, and whose bite leaves little irritation.

19. It is therefore unwise to commit oneself to the remark so frequently heard, that there are no mosquitoes in a particular place or camp, without the opinion of an expert.

20. All mosquitoes lay their eggs upon water and the larval and pupal stages of their life are spent in the water. They wriggle to the surface periodically to breathe.

21. When the pupa is ready to change into the mature insect it rises to the surface, the pupa-case splits down the back, the mosquito emerges, and, after an interval for its newly-formed wings to harden, it flies away.

22. If a thin layer of kerosene oil be spread upon the surface of the water neither larvae nor pupae can get their breathing tubes to the surface and all die of suffocation, a never-failing and ever-ready method of preventing mosquitoes hatching out of receptacles which cannot easily be emptied of water.

23. Where there is no water there can be no mosquitoes.

24. No other insect can convey malaria. Where there is malaria there must be anopheline mosquitoes.

25. It does not follow that because there are anopheline mosquitoes there must be malaria. The insects though present may not have been infected and therefore may be harmless.

26. One bite is sufficient to cause an attack and one infected mosquito may give malaria to several persons in one night.

27. Those species of anopheline mosquitoes which convey malaria are not usually found away from human habitations, or if found are not likely to be infected.

Consequently men on picket duty, or in bivouac or temporary camp, although severely bitten by mosquitoes, often run less risk of malaria than those in camps or hospitals or lines of communication, where numbers of men who have suffered from malaria are congregated and where every anopheline mosquito is likely to be infected.

28. *The Mosquito net.*—The segregation of the individual beneath an efficient net at night is by far the most important and effective means, not only of guarding against a primary attack, but of preventing infection being carried from the sick person to healthy persons.

29. Owing to the development of the crescentic carrier bodies after and during the continuance of the fever the use of an efficient mosquito net is far more important to the welfare of the community after than before the attack.

30. One person or even a baby with crescentic bodies in its blood sleeping without a mosquito net, or with one that is defective, may be and often is the nucleus of an epidemic.

31. Hence arises the danger of sleeping near a village, because in a malarial locality a large percentage of the youngest children have active parasites and crescentic bodies in their blood, and yet they play about without showing symptoms of fever.

32. Adults, on the other hand, in a malarial locality are not usually a danger, for having suffered severely in early childhood they have acquired a partial immunity, and in consequence suffer little from malaria.

33. Strangers, however, from regions where there is no malaria, not having suffered from the disease in childhood, have acquired no immunity, and are soon likely to be infected on reaching a malarial district.

34. East Indians rarely seem to acquire any immunity and are very susceptible to malaria.

35. A mosquito net to be effective should be large enough to prevent the arms and knees being bitten through it, and also to allow of its being tucked in all around.

36. An efficient mosquito net properly used is a protection in tropical America against attacks from many harmful insects and animals besides mosquitoes. For example: Flies which lay their eggs in the skin or in the nose at night, the maggots hatched from which sometimes causes irreparable injury or even death; scorpions; several species of dangerous centipedes; poisonous ants; beetles of many sorts which injure by biting, ejecting poisons, or by entering the ears; ticks whose bite convey fever; snakes, lizards, rats, etc., and, by means of its calico top, from dust and dirt dropping from above in hut or tent, or from heavy dew when sleeping in the open.

37. The lightest and smallest net which can be made serviceable under all circumstances, whether in hospital, clearing station, camp or bivouac, is one with calico top 5 feet 6 inches long by 2 feet broad and with sides 3 feet deep (2 feet of netting and 1 foot of calico tuck-in.) At each four top corners are double tapes, 8 inches long, for fixing the net to its supports.

38. The latest approved pattern is a rectangular net of the above dimensions. To be effective it must be suspended by means of its corner tapes inside its supporting sticks, otherwise it cannot be tucked in. On no account should it be placed over its supports nor allowed to sag or hang loose.

39. For transportation purposes the mosquito net should be khaki, or any less conspicuous colour than white, but khaki netting being unobtainable it is advisable for each man to dye his net with Condyl's fluid or other colouring agent.

40. There are other methods of individual segregation than by the mosquito net. The best of these is by

the use of "bamber oil," a mosquito lotion used extensively by East Indians on the plantations in Ceylon, etc. Its composition is as follows:—

Citronella oil (not lemon-grass oil) $1\frac{1}{2}$ parts

Kerosene (paraffin) oil 1 part;

Coconut oil, 2 parts (crab nut oil is preferable.)

To which is added carbolic acid 1 per cent. Its efficacy lasts from four to six hours, sufficient to give a night's sleep in comparative safety when a mosquito net is not available or cannot be used.

41 *Quinine*.—Quinine is the only drug in the world which will kill the malaria parasite, and consequently quinine is the only drug of any use as a prophylactic against malaria—that is, for the prevention of primary attacks,—and it is the only medicine which will cure the disease.

42. Quinine being absorbed into the blood kills the parasite freshly injected by the mosquito, but when after three or four hours these have entered the corpuscles quinine has less effect upon them.

43. Quinine should therefore be taken early after any risk has been incurred, but as the exact time of the risk can rarely be determined the best way to accomplish this is to take it frequently.

44. A daily dose of 5 grains after the evening meal is for many reasons the wisest procedure.

45. A dose of 5 grains taken at 10 p.m. will kill any parasites which have been injected by mosquitoes during the evening, and will remain in the blood long enough to put out of action that may be introduced up to 6 a.m. next morning. The hours of daylight need not, of course, be provided for.

46. If quinine is taken only on Saturdays and Sundays a person may be bitten by infected mosquitoes on the Monday, and the parasites so injected may have so multiplied in the body by the time Saturday comes round again that an attack of fever is unavoidable.

47. Quinine alone will reduce the chances of infection more than perhaps 25 or 30 per cent. but quinine plus the intelligent use of an efficient mosquito net should reduce those chances by at least 90 per cent.

48. Quinine is the only specific for malaria. It cuts short the attack by killing the young parasites as each successive crop develops in the blood.

49. If taken in sufficient quantities during the attack it will prevent the formation of the crescentic bodies, which once formed constitute the convalescing patient a danger to his fellows, and in spite of quinine may remain in the body for a long period.

50. A slight attack is just as dangerous in this respect as a severe one, and a person refusing to go sick "for a little fever" and neglecting to take quinine deserves to be severely dealt with.

51. If continued after the attack in sufficient doses daily it will account for all the resting, latent forms of the parasites in the spleen, etc., prevent relapses, and bring about a permanent cure, but the mosquito-net protection must be efficient and fresh attacks from bites of infected mosquitoes not allowed to supervene.

52. A good method of quinine after-treatment—that is, from the date of the subsidence of the fever is as follows :

At least 20 grains daily for 2 weeks

At least 15 grains daily for 2 weeks

At least 5 grains daily for 2 months.

53. With the quinine may be combined, if necessary, iron and arsenic tonics as ordered by the medical officer.

54. Opinions regarding the after-treatment by quinine frequently differ as to when and how the drug should be taken, but the main point to realize is that the dosage should be daily for three months and the daily dose sufficiently large during the first month of the three. If a relapse should occur the three months' treatment must be commenced afresh.

55. Neglect of quinine after the attack will certainly result in a relapse, which may mean the development of additional resting forms and crescentic bodies, as well as the further decrease of the resisting power of the body, tending to other relapses and great debility.

57. Although the taking of quinine has in some cases resulted in the passing of black water unaccompanied by any fever, quinine is certainly not the cause of blackwater fever.

58. Although we may not know precisely what is the cause of this disease, there is plenty of evidence to show that malaria is the initial factor. To prevent malaria by the careful use of a net, or to bring about a permanent cure by energetic treatment by quinine, is the only way of avoiding a risk of blackwater fever.

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GENERAL MEETING.

Minutes of the General Meeting of the Society held in the Council Chamber on Thursday, 9th August, 1923, at 1.30 p.m.

Present :—W. S. E. Barnardo, President in the Chair, Hon'ble A. B. Carr, Vice-President; H. Warner, Honorary Vice-President, Wm. Nowell, Assistant Director of Agriculture; Revd. H. H. Morton, Captain Gooden-Chisholm, Messrs. G. de Nobriga, A. V. Stollmeyer, E. Radcliffe Clarke, H. W. Brathwaite, G. G. Brown, C. M. Samlalsingh, H. Gajadharsingh, C. P. Rojas, A. A. Sobrian, A. G. Hamlyn, J. Black, J. Knox, Captain A. A. Cipriani, L. Cipriani, Wm. Dickson, C. Fleming, A. Cory-Davies, S. Medford, F. Anduze, A. F. Clarke, E. Gransauil, G. C. Wyatt, E. A. Robinson, M. Mills, Delegate Tacarigua, W. G. Culverhouse and L. De Verteuil, Secretary.

Messrs. Frame & Boissevain of New York, attended as Visitors.

Hon'ble W. G. Freeman :—Before proceeding with the business of the Meeting, the President said it was his pleasant duty to congratulate Mr. Freeman, Director of Agriculture, on having been made a Member of Council. It was right that the Director of Agriculture should be a Member of Council and in Mr. Freeman, they could not have a better man. He had always been a good friend of the Society. Mr. H. Warner spoke approvingly.

Minutes :—The Minutes of the Meeting of 12th July, that had been circulated, were confirmed.

Election of New Member :—For the first time, the use of Ballot papers in the election of new Members, was put in practice and Doctor J. F. Gibbon, Proprietor in Tobago, was unanimously elected a Member.

The Agricultural College :—A letter was received from the Acting Colonial Secretary regarding the change of title of the West Indian Agricultural College to that of "Imperial College of Tropic Agriculture."

On the motion of the President, seconded by Mr. H. Warner, the alteration in title was approved. This was the outcome of a telegram from the Secretary of State for the Colonies stating that a meeting had been held at the Colonial Office, under his Chairmanship and that there were present Lord Milner, the Governor of Trinidad, Lord Burnham, the Editor of the "Times" and other influential business men. All present were agreed that the scope of the College should be Empire wide but that the prospect of obtaining the necessary funds would be gravely impaired if it retained a title suggesting it was merely a local institution.

Visit of Parliamentary Delegation :—The Secretary read a letter from the Secretary of the West India Committee, regarding a visit of a Parliamentary Delegation to the British West Indies and British Guiana and correspondence with the Acting Colonial Secretary on the subject..

The letter is published for general information in the "Proceedings" of the Agricultural Society for July.

The Chairman said that they had not yet received an official answer from the Government and that they should simply say that if the Government contributed to the expense of providing Board and Lodging and entertainment for a period not exceeding one week, for fifty or sixty persons, they should only be too glad to co-operate, although they had no funds at their disposal to vote.

Mr. Cory-Davies said that this matter had already come before the Chamber of Commerce and that he understood that the Government had indicated its intention of allocating the sum of £1,000 for the reception of those Members of Parliament and their wives, during their stay in Trinidad. He personally thought, that great benefit would be derived from such a visit and as Members of Parliament, they would be better able to vote on measures regarding the welfare of the Crown Colonies.

Mr. H. Warner agreed and thought the opportunity was one that should not be lost for benefitting the Island.

Mr. E. Radcliffe Clarke also favoured the suggestion of entertaining the delegates and their families for the great good of the Colony and thought the expense would be a magnificent investment.

Hon'ble A. B. Carr did not think the Society would be justified in committing the Colony to such an expenditure in the present financial stress.

Captain Gooden-Chisholm agreed with the Hon'ble A. B. Carr.

On the motion of Revd. H. H. Morton, seconded by Mr. H. Warner, the scheme being put to the vote, was approved.

Cacao Industry :—The Secretary read a letter from the General Secretary of the British Empire Producers' Organization, enclosing a copy of the Minutes of the Cacao Section of the Organization. The letter and the Minutes

are published in the "Proceedings" of July for the information of Members and will be dealt with, along with other papers of a similar nature, by a Special Committee who will report to the General Meeting.

Agricultural Bank :—Resumption of the debate on Captain A. A. Cipriani's motion:

"That in the opinion of this Society, the attention of the Secretary of State for the Colonies should be again directed to the present financial depression and the distressing condition of the Cacao Planters of the Colony with the resultant threatened extinction of the entire Industry and the consequent unemployment of the Labouring Classes, with a view to steps being taken to afford the only possible relief by the establishment of the Agricultural Loan Banks as recommended by the Local Government, and that a deputation be appointed to present to His Excellency the Governor this resolution with the request that it be forwarded to His Grace the Duke of Devonshire, K.G., C.B., Secretary of State for the Colonies, for his further and favourable consideration."

1. Hon'ble A. B. Carr, who spoke on the original motion, recalled that in June 1922, he had the honour to move a resolution asking for the establishment of an Agricultural Bank—it was remarkable how unanimously that resolution was carried, all agreed that such an institution was very necessary. He maintained that in spite of what he has been hearing lately to the contrary, from some quarters, he was convinced that now more than ever there was great need for it. The scheme has been explained and if 30 or even 20 per cent. of the Planters in the Colony offered conditions acceptable to the Bank, they should by all means, be allowed to make use of it for financial help and the door should not be closed against that small number. He will not stultify himself.

2. The following amendment to Captain A. A. Cipriani's resolution was moved by Mr. E. A. Robinson:

“That under present circumstances, the Agricultural Society wish to urge on the Secretary of State the necessity for the establishment of an Agricultural Bank, the operation of which shall be strictly confined to making advances for the purpose of the cultivation of Agricultural crops.”

Mr. E. A. Robinson asked leave to alter the amendment to read as follows:—

“This Society is of the opinion that an Agricultural Bank whose operations should be strictly confined to making advances for the cultivation and maintenance of growing crop is an urgent necessity.”

Mr. Stollmeyer rising to a point of order, said that the amendment was not relevant to the original motion and that the standing rules should be suspended before Mr. Robinson is allowed to speak.

The Chairman ruled that the amendment was relevant and allowed the alteration.

Before opening the arguments, on his amendments, Mr. E. A. Robinson, thought that Mr. Carr was mistaken, when he said he had first moved the original resolution for an Agricultural Bank. He (the speaker) might say that he had been advocating the establishment of an Agricultural Bank for a number of years, long before Mr. Carr's resolution came before the Society under its present form, but he always wanted a Bank for advancing money for the cultivation of crops; never was there the suggestion that there should be a Bank to loan out money on mortgage, and when he heard the rumour that it was sought to try to tack on to the innocent scheme advancing loans against crop; an elaborate scheme which

would plunge the Colony into an enormous financial transaction, he thought that it would be most disastrous to the Colony and if adopted, the Colony would not recover from its consequences for a very long period.

Continuing, Mr. Robinson said that Mr. Stollmeyer had told them that his amendment was not in order, but he could not see how it could be more in order, as his motion was for a bank for the advancing of loans against crops. He (the speaker) admitted that he was in favour of a bank, that was for the purpose of giving advances against crops but he objected to a bank for the purpose of giving loans against properties in the colony, because one was a legitimate transaction, with a liability which could be kept within bounds, while the other, he pointed out to them, would eventually mean that the colony would be the owner of nearly all the cocoa estates in the next few years and the Government become its own taxpayer. That was the position that was being led to by the original motion. Advances against crops were quite legitimate if a man had an estate and wished to get advances to carry on. It was right and proper that people of that sort should come to the bank and he said that it was legitimate for the Government to loan such a man and say to him "Your property is in such a state that we can help you to tide over a bad year against crops." A loan of that sort could be kept within bounds. Such a bank was established in Barbados when the sugar industry was in a worse position, or quite as bad as Cocoa is today. He was one of the victims. Sugar went down to 95 cents a 100 lbs. The bank was established then, just such a bank as he was contending for here, to assist the owners to cultivate their estates. That Bank saved Barbados and was a tremendous blessing to that island. Planters were able to carry on until things mended a little. Of course, many estates changed hands. They had to go down to the market value. Instead of selling at £100 an acre, they fetched

£20 an acre. Just as cocoa property is going down now. Mortgages would have to sell, whether private or Government.

The values had to go down; nothing could prevent them from going down, and they had to try, when properties had reached the prices that they were worth, to help the people then in possession, to carry on their cultivation. If the Government lent money at present values on Estates and the values dropped, then the Government would have to raise taxation to cover their losses. The Government would be unable to keep up the railway lines etc., because the little tax they would be able to collect, would have to be sent away to pay interest on the money advanced.

He would show them how serious the matter was. They had Mr. Bushe there at the last meeting. He came there with the object of telling them what the scheme was. There was no man of whom he thought more highly, than of Mr. Bushe. He was absolutely incapable of expressing any idea he did not believe. He came there and the speaker listened to what he had to say about the scheme with the belief that he would be instructed as to the obligations which the Government would incur under the scheme. But what explanation did Mr. Bushe give them? He did not tell them anything about the liabilities that they would be undertaking. If any scheme was put before business men, the first thing they would enquire into was the possible extent of liabilities to be incurred by them.

He expected Mr. Bushe to supply them with figures in the first place. There was no difficulty in getting them. He could have told them that the scheme was likely to cost so much. If that scheme was put before him as a Director of a Company, the first thing he would desire to know would be the extent of the liability to be incurred. Did any of them know what the liabilities were? asked the Speaker. What liability was being sought to be imposed

on the Colony? They took the matter airily and thought that the money would be got from somewhere and did not think any more about it. There are two sources from which it may come:—(Oil under present circumstances does not seem to be of any value for the purpose) there only remain Cocoa and Sugar. Sugar was up a little now, but how long was it going to be so, no one knew. Some people without knowing anything about the matter, advocated the scheme not knowing what the liabilities would be. That Society voted headlong for it, and the Chamber of Commerce voted also without knowing what the liabilities would be. It was because everyone who opened his mouth fearlessly was accused of self-interest. That was the curse of the country. When a man spoke fearlessly and refused to accept anything at its face value, he was accused. No man could give his opinion fearlessly without being attacked.

The position was that the Government's liabilities would amount to something like seven and a half million Dollars. Nobody, who was responsible, would talk about a Government Bank being limited to Mr. Tom, Mr. Dick and not to Mr. Harry. If it is the taxpayers money whether it is a big man or a small man, so long as he was a taxpayer of the Colony, he would have a right to borrow from the Bank. If that was not so then it would be a disgraceful institution. They must take it that every Cocoa Planter would have the right to borrow. The position would be something like this. The Colony roughly produces 400,000 bags of Cocoa. Estates during the old days were valued at \$100 per bag. Thus the Cocoa Estates of the Colony were roughly valued at \$40,000,000. The value of Cocoa Estates to-day had fallen to about \$50 per bag, the value therefore, to-day of the Cocoa Estates of the Colony would be about \$20,000,000. Let us assume that the proprietors of $\frac{3}{4}$ of those Estates wished to borrow. The Government would have to make loans on properties of 300,000 bags worth \$15,000,000. If the Government lent half the value of this, it would

lend on Mortgage seven and one half million Dollars. The interest on seven and a half million at 8 per cent., which is seven per cent. for the Bank and one per cent., sinking fund equal to \$600,000.

Cocoa to-day was worth \$12 a bag, and he spoke without fear of contradiction by honest men, that it cost \$11 per bag to produce Cocoa. The account would therefore be :—

300,000 bags Cocoa @ \$12	\$ 3,600,000.
Less cost of producing @ \$11	3,300,000.
	<hr/>
	\$ 300,000.

Loans of \$7,500,000 @ 8% equal	\$ 600,000.
Less surplus from Cocoa	300,000.
DEFICIT	\$ 300,000.

Where was this money to come from? This was where the scheme was utter rubbish.

The Government on the starting of this Bank would be pledging itself to advance at least seven and a half million Dollars on properties which could not meet the interest and sinking fund. It would have to advance to small and big proprietors and not according to communistic or socialistic ideas that only men with ten acres might borrow.

It was evident from the Report that those gentlemen foresaw that there would be an enormous loss and they were prepared to rob the bank, that he had suggested, a loan bank, to advance against crops. They wanted to rob the thrifty man to pay the loss of the mortgage bank. The speaker then read from the Report of the Committee (Council Paper No. 104 of 1922 Page 12, appendix Dd.) as follows:—"Having considered the questions referred, we are of the opinion that if the rate of interest to be charged by the Bank, on its short loans against delivery of crops is fixed from time to time, as may be found necessary, to ensure sufficient funds for the bank to meet its liabilities

to the Government to cover cost of administration, and to provide against losses, the difference of 1 per cent. between the rate of mortgage interest and Debenture interest will be sufficient." This Report, the speaker said was signed by Messrs. Bushe, Cipriani, Messervy, Cornell and MacKenzie. The poor devils who were working their estate, the thrifty, honest and self-sacrificing men, were to be mulcted because the loss on the mortgage Bank was to be paid. If that was not a nefarious attempt to injure the industry, he did not know what was. The speaker next quoted the following passage from page 13 of the Committee's Report: "The Bank also will make short loans against crops, and I submit for the Sub-Committee's consideration that the rate of interest on these short loans can be fixed from time to time at such a rate of interest as to enable the Bank to meet its liabilities, to the Government and all necessary incidental expenses to its operations; it being borne in mind that the amortization scheme outlined above, is dependent upon the principle that the sums collected at the rate of 1 per cent. per annum, for amortization are invested at compound interest at the rate of 7 per cent. Whilst on the one hand it is desirable that the interest on the short loans referred to should be unnecessarily high, it must be such as to cover the Bank's liabilities." This the speaker said, was an attempt to saddle with interest the man who borrowed against crops.

The speaker went on at great length to point out the evils which would result from the establishment of such a Bank, and the fact that it would benefit neither the proprietor nor the labourer, and said that they were not out to help the Mortgagee, although they ought to allow the Mortgagee full exercise of his rights under his deed. There was only one solution to the question. Estates would have to go down in value like every other commodity. They would have to go down until they reached their economic value. If they had no value then nothing could be done. Some gentlemen had said, the speaker

continued, that they could not go against the original motion because they would be stultifying themselves. That was a most contemptible attitude for a man to take up. Such a man was not open to conviction. His mind was a stagnant pool which was incapable of producing anything good. Surely if a man had heard something that he had not heard before and it was unanswerable, he would show himself a fool not to change his mind, but if he admitted that he was convinced by what he had just heard, but would not change his mind because it would be inconsistent, then he would admit that he was a rogue.

3. Mr. C. Fleming seconded the amendment and agreed with Mr. Robinson. He endeavoured to show that Mr. Carr had changed his mind, but did not remember he had done so.

Mr. Carr repudiated Mr. Fleming's suggestion, that he had changed his mind and that his attitude that afternoon agreed with that which he held in the past.

Mr. Stollmeyer said :—We have listened to a lengthy, and more or less interesting dissertation, on the merits of a bank to make advances against crops, and the demerits of a Government Agricultural Mortgage Bank. The evidence in support of the former, due to its weakness, has necessarily been lengthy and laboured, and has been built on misconceived ideas, and that of the latter, obviously the outcome of a lack of knowledge of the subject. As it would serve no useful purpose to touch on all points raised by my friends, I propose to deal with only the salient ones, as they will be sufficient to prove my assertions. To take them in their sequence; let us analyse the statement in support of the argument that a bank to make advances on crops is all that is necessary for our present needs, and for the permanent benefit of our agriculture. There would be no difference in principle and in practice between a bank of this nature, and the existing Agricultural Relief Ordinance. It would be simply perpetuating

a temporary measure, not in the best interest of all concerned. Persistent objection has been taken to it, or any other relief, or benefits of a similar nature by the Capitalists of the Island, in respect to their cocoa investments. They claim and justly so, that the security which the Government must necessarily hold for advances of the kind constitutes an encroachment on their vested rights. The measure was introduced by our Legislature, in an effort to tide planters over a crisis. When it was established, there was no anticipation that the condition would have been maintained for so long a time; and although the measure has been extended for a further period to the end of June, 1924, it was recognised and generally conceded that it should not be continued indefinitely, and that something of a more permanent character, in the better interests of all concerned, would have to be substituted. It must be appreciated that this thought has been the outcome of mature consideration, by those who are best able to judge. Another objection to the bank of this nature, is the fact that it would be unrestricted in its scope, and not limited to crops of a permanent character; and this is a proper objection; for the reason that in making advances against growing crops, such as sugar, there would be no proper sense of security for the loans advanced, owing to the fact that the capital attached to this industry is represented by its factories, added to which all the properties with few exceptions, are owned by absentee proprietors, limited liability companies, etc. And lastly, the most serious objection is, that it will tend to remove much needed Capital from the Island. I think there is sufficient in these statements of facts, to convince the most sceptical that this proposal is unworthy of entertainment. In order to support the amendment, the Agricultural Mortgage Bank has been attacked in various directions. It has been condemned firstly because of the fear that its administration will be defective; because it will be of no value to either mortgagees and mortgagors; because it will involve too great a capital outlay; and because it will be of no permanent good to the Island. Let us also deal

with these in their order. In regard to its mal-administration, I confess that I must also make an objection to a feature under this heading. I must take exception to the name by which it has been christened. I can think of no other reason for the foundation of this fear, than from the unfortunate name given to the proposed institution. A mental picture of a commercial bank, with all its intricacies, such as dealing in promissory notes, bills of exchange, etc., has apparently been conjured up. Had it been given a less important name, I am sure much dilemma might have been saved. Gentlemen, the bank is to be purely an agricultural one. A concern dealing with loans on properties, and advances on crops. This is far removed from the usual form of banks to which we have been accustomed, and which we know here. The institution will not necessarily be administered by Government officers. It is merely to be under the aegis of the Government, the staff is to be nominated by the Government; and the management to take the form of a Board of Directors. To administer such a bank, the essential elements of the qualification of the manager and staff should be the ability to deal in finance, having at the same time a thorough knowledge of practical agriculture. Do you wish to infer that such men are not to be obtained here? With respect to mortgagees and mortgagors. There seems to be a general misconception with regard to the benefit or otherwise to be obtained by these and it is well that this point should be elucidated. Contrary to general ideas, the proposed mortgage bank will have no concern with either mortgagee or mortgagor. I cannot, for the life of me, understand why this thought should have arisen. There is nothing in the scheme to suggest that existing mortgages are to be accepted, or that loans are to be made on the basis of \$1.00, or any fixed price per tree, or per acre. The establishment of the bank will create a market value for cocoa estates. It will adjust capital values. It will, by reason of the exchange of Government bonds to represent the loan made, retain the capital of the industry within the colony. With regard to the extent of the capital which will be required;

my answer is that the amount necessary will be compatible with the extent of loans asked for, and will be raised from time to time. Personally, I hope its benefit will be taken the fullest advantage of, and the Bank will be largely patronized. As to its permanent benefit to the colony, I can hardly refrain from voicing my surprise at those who cannot see this. It will take very little thought to appreciate that a measure of this kind will enable planters to maintain and improve their cultivation, not only during the present depression, but to continue to do so to a greater degree when the crisis is over. It has been argued that while present prices remain, this would be impracticable, for the reason that it would be impossible to pay interest and amortize a loan. To this I agree, but I can assure you that to meet such a condition, the Government would have to resort to legislation to protect not only the clients of its banks, but the industry on which its success depends, on mortgages, and advances on crops, and postpone the payment of interest until such time as things improve, and the repayment is made possible. Due regard of course would have to be taken by the bank to see that its advances are legitimately applied, and all things being equal, I can contemplate no reason while present conditions last, for fore-closures, other than for misappropriation of funds. The industry cannot be resuscitated from its past neglect, and from the present crisis, except through a mortgage bank; and in no better way can the industry be placed on a stable basis for the future. Gentlemen, it seems a pity in this little Island to find that some men, admitted with intelligence, cannot see things in a wide sense, it must be because we live in a narrow compass. I can only say my opinion is that it is the outcome of self-centred thought. I am sorry to repeat this but it cannot be interpreted in any other sense. Why we cannot get in line with other progressive countries in adopting up-to-date measures is difficult to fathom. If you would think well over the reason of the present exodus from the island, the general depression, the cutting down of cocoa trees, the depleted Customs revenue; you

must surely agree that a remedy is required and that this bank will be the saving of the situation. A bank to advance money against crops alone will not meet the situation, and having regard to Mr. Robinson's arguments and criticism, I think he should be the last one to advise a scheme such as is called for by his motion. Think of the taxpayer when the deficits caused by the present condition of affairs have to be made good. A mortgage bank will enable the wheels of industry to start anew, and in time repair the present trouble, and place the industry on a better and permanent basis. By the establishment of a mortgage bank planters will be able to obtain money at a reasonable rate of interest, and owing to the supervision over the employment of the advances, the industry will be safeguarded against neglect through improvidence or otherwise. The amendment, gentlemen, is not worthy of consideration. It is the outcome of immature thought, and you would act wisely to reject it and vote cordially and unanimously in favour of Captain Cipriani's motion.

5. Mr. Gransauil asked if Mr. Robinson intended that advances should be made on every crop. Mr. Robinson answered in the affirmative and that a prior claim should only be given to the Government with the consent of the Mortgagee.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

—————(o)—————
COMMITTEE MEETING.

Minutes of the Meeting of the Committee of Management, held in the Council Chamber on 9th August, 1923 at 10 a.m.

Present.—W. S. E. Barnardo in the Chair, Captain Gooden Chisholm, Messrs. G. C. Wyatt, C. Cleaver, A. V. Stollmeyer, S. Medford, E. Radcliffe Clarke, C. P. Rojas,

A. A. Sobriana, J. Knox, J. Black, C. Fleming, F. Le Blanc, Hon'ble A. B. Carr, and L. de Verteuil, Secretary.

Voting by Ballot.—The Secretary laid on the table the form of ballot (as seen below) to be used at elections—it was approved and the Secretary was authorized to use it—It was also decided that members will be elected on a majority of votes.

AGRICULTURAL SOCIETY OF TRINIDAD AND TOBAGO.

.....1923.

ELECTION OF MEMBERS.

BALLOT PAPER.

Name of Candidate :—

N.B.—Please write "Yes" opposite Candidate's name if in favour of Election or "No" if not in favour.

Quarterly Accounts.—The quarterly accounts to 30th June 1923 were circulated and after having been approved were ordered for Audit.—Expenditure for the Quarter ending 30/6/23 \$1,290.11

To Balance at credit Colonial Bank Current act. \$ 441.24

To Balance at credit Colonial Bank Savings act. 1,311.17

Total Credit	\$1,752.41
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Correspondence.—The Secretary laid on the table letters from the General Secretary of the British Empire Producers' Organization and from Mr. H. Hamel-Smith relating to the Sugar and Cacao Industries. In answer to the question asked by the General Secretary whether there will be an increase of Sugar production in the

Colony to justify a higher preference ; the Secretary was instructed to say , that there was a reasonable probability of greater production, if prices kept fairly stable.

With regard to the other matters relating to Cacao, it was considered advisable to write to Mr. H. Hamel-Smith, thanking him for the great interest he is taking in the Cacao Industry of the Colony and to inform him that the subject matter of his letter is being considered with other similar matter.

After discussion, it was decided to postpone further consideration of the best methods of advancing the Cacao Industry to next meeting of the Committee.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

—————(o)—————

REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

FYZABAD.

The regular monthly meeting of the Fyzabad District Agricultural Society was held at the Fyzabad school house on the 7th August, 1923.

Present were Messrs. H. Meaden in the chair, O. Sumesar, N. P. Gour, Nat. Goberdhan, Gangabissoon Maraj, C. Goberdhan, Ali Mohamed, H. Bissoon, Bhagratee, Maharaj, Mungul, F. Bhola, Hadai, Alfred Penna, Agricultural Advisor, S. M. Harnarayan, Hon. Secretary and 9 visitors.

Minutes.—The minutes of the previous meeting were read and confirmed.

Trinidad Cane Farming and Sugar Crop Returns 1923.

COMPILED BY EDGAR TRIP & CO.

ESTATE.	Total Sugar Male	Tons of Sugar made from	Tons of Estate Cane	Tons of Cane	Amount	No. of Farmers	
	Tons	Estate Cane.	Ground.	Purchased.	Paid for Canes.	East Indian	West Indian
Brechin Castle ..	3,328	2,643	27,215	7,376	\$ 39,113.00	415	326
Bronte ..	2,542	1,293	13,132	14,181	41,973.04	644	172
Caroni Estate ..	4,056	*2,967	41,524	15,270	54,972.00	962	614
Craignish ..	606	203	2,439	5,772	22,516.58	720	380
Esperanza ..	2,210	1,514	16,844	8,021	**	488	293
Forres Park ..	1,737	1,174	12,674	6,752	24,311.65	408	143
Golden Grove ** ..							
Hindustan ..	384	41	656	5,358	19,985.04	252	587
Reform ..	494	**		6,497	23,232.22	**	**
Tacarigua Factory ..	3,020	1,312	14,022	18,052	† 88,787.28	749	773
Usine Ste. Madeleine ..	13,732	7,925	74,891	53,938	† 156,279.98	3,077	1952
Waterloo Estates ..	5,210	*2,829	30,042	25,733	† 92,638.80	1,105	1010
Woodford Lodge ..	4,300	2,350	19,772	19,495	101,568.95	850	580
	41,619	24,251	253,211	186,445	665,378.54	9,670	6830
Return for 1922 ..	59,948	29,599	340,358	355,364	813,036	12,605	8,745
" " 1921 ..	54,933	24,207	286,974	389,399	1,773,227	15,046	11,379
" " 1920 ..	58,416	28,953	319,421	344,226	2,924,404	14,536	10,824
" " 1919 ..	47,850	24,656	275,451	270,324	1,210,155	12,370	8568
" " 1918 ..	45,256	22,544	252,783	266,144	812,247	12,158	8244
" " 1917 ..	70,891	36,102	378,999	384,650	1,093,770	12,055	8984
" " 1916 ..	64,231	35,653	426,106	363,775	1,008,665	14,014	8212
" " 1915 ..	58,882	34,376	426,262	325,071	862,790	9,202	7078
" " 1914 ..	55,488	35,690	407,797	201,799	486,630	7,450	5253
" " 1913 ..	42,331	31,095	346,912	136,724	330,364	6,942	5513
" " 1912 ..	40,936	27,856	325,762	151,697	358,428	6,983	6042
" " 1911 ..	46,718	32,599	366,599	165,720	357,560	6,621	6391
" " 1910 ..	51,950	37,446	454,530	176,447	412,658	6,443	5820
" " 1909 ..	52,972	39,553	451,801	154,663	337,817	6,077	5324
" " 1908 ..	48,933	36,340	380,334	139,422	303,631	5,922	5619
" " 1907 ..	50,564	35,597	373,577	169,709	340,527	6,557	5777
" " 1906 ..	62,975	39,735	397,912	237,844	469,122	6,127	5446
" " 1905 ..	38,240		244,418	144,868	482,053	5,424	5462
" " 1904 ..	50,744		385,015	171,947	360,046	4,646	4685
" " 1903 ..	47,778		337,632	166,590	348,445	4,443	4440
" " 1902 ..	57,334		337,911	184,867	327,183	4,506	4850
" " 1901 ..	*60,880		334,003	169,918	369,482	3,819	4737
" " 1900 ..	*46,277		364,355	105,996	227,865	2,826	3591
" " 1899 ..	*58,837		426,306	106,741	219,011	2,826	3870
" " 1898 ..	58,109			105,733	202,901	2,326	3824

* Estimated.

** No returns furnished.

† Paid on account.

Correspondence.—Letters were read from Mr. A. Penna and one from Mr. T. G. Grant, the Secretary was directed to return thanks to Mr. Grant for sample of Weedicide and to inquire the price of same.

Nomination of Candidates.—Mr. J. Budhu was proposed a member by N. P. Gour and seconded by C. Goberdhan.

General Business.—Mr. A. Penna was asked to lecture on vegetable growing at the next meeting, which he consented to. Mr. Ramsakal spoke on the pollution of the water of John River, the society advised him to see the Company first, before taking other steps.

There being no further business, a vote of thanks was moved to the chairman, the meeting terminated.



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Davidson & Todd, Ltd.,

THE ARCADE.

TRINIDAD MONTHLY PRODUCE REPORT AND STATISTICS.

COMPILED BY EDGAR TRIPP & Co.

Port-of-Spain, 31st August, 1923.

CACAO.—Owing to cable advices from New York reporting an advance in prices during the latter part of the month, values here improved immediately. Buyers were keen to secure the small quantities offered, and as much as \$9.10 and \$8.00 were paid for "Plantation" and "Middling Red" qualities. It is feared, however, that these prices will not be maintained for any length of time.

Arrivals of Venezuelan cocoa have been satisfactory and sales of this grade are reported at \$8.50 to \$8.75.

SUGAR.—Only 673 lbs. have been exported during the month, a portion of the remaining stock is being reserved for local consumption and is being sold at 8 and 7 cents for Yellows and No. 3 Grocery respectively.

The canes are reported to be doing well under favourable conditions and there is every prospect of a good crop next year.

MOLASSES.—There is very little business to report, only 2,259 gals. having been shipped to foreign markets.

As reported in our last, there still remain large stocks for disposal.

COCONUTS.—There was a noticeable improvement in the local market, sales having been made at \$18.00 and \$10.00 per 1,000 for Selects and Culls respectively.

COPRA.—In consequence of the increased value of Coconuts prices for Copra showed a corresponding improvement, sales having been reported at \$4.20 per 100 lbs. towards the close of the month.

Planters are said to be hopeful of yet better prices in the near future and are therefore not inclined to effect forward sales of their crops.

ASPHALT AND OIL.—It is interesting to note the continued improvement in the exportation of both of these products.

CACAO.

Shipments of Trinidad Cacao During the Month of
August, 1923.

Destination.		Weight in lbs.
To all countries	.. ..	3,261,366 ..
Shipped previously	.. ..	56,834,321 ..
		<hr/>
Total from 1st January	.. ..	60,095,687 ..
To same date 1922	.. ..	40,581,245 ..
" " 1921	.. ..	63,397,266 ..
" " 1920	.. ..	57,585,723 ..
" " 1919	.. ..	54,937,634 ..
" " 1918	.. ..	44,373,021 ..
" " 1917	.. ..	65,009,986 ..
" " 1916	.. ..	47,991,067 ..
" " 1915	.. ..	43,834,541 ..
" " 1914	.. ..	59,317,676 ..
" " 1913	.. ..	43,776,161 ..
" " 1912	.. ..	38,291,456 ..
" " 1911	.. ..	40,532,091 ..
" " 1910	.. ..	46,044,541 ..
" " 1909	.. ..	39,907,499 ..

London Quotations for Ordinary:—

1st August per cwt.	.. ..	47/—49/—
30th " " "	.. ..	47/—48/—
31st " " "	.. ..	47/—48/—

At same date 1922	...	...	67/—69/-
„ „ 1921	..	..	56/—58/-
„ „ 1920	..	..	105/—92/-
„ „ 1919	..	..	120/—127/-
„ „ 1918	..	..	90/-
„ „ 1917	..	..	85/—87/-
„ „ 1916	..	..	83/—82/-
„ „ 1915	..	..	82/—79/-
„ „ 1914	..	..	57/—60/-
„ „ 1913	..	..	71/-
„ „ 1912	..	..	72/-
„ „ 1911	..	..	58/—62/-
„ „ 1910	..	..	55/—54/6
„ „ 1909	..	..	54/—55/-

New York Quotations :—

1st August per cwt.	..	..	8½c.
4th „ „ „	..	..	8¼c.
10th „ „ „	..	..	7¾c.
21st „ „ „ „	..	..	8c.
24th „ „ „	..	..	8¾c.
28th „ „ „	..	..	8⅞c.
31st „ „ „	..	..	8⅞c.
At same date 1922	..	..	12¼c.—11⅝c.
„ „ 1921	..	..	7¾c.—8c.
„ „ 1920	..	..	16c.—15c.
„ „ 1919	..	..	25¾c.—26⅛c.
„ „ 1918	..	..	14c.
„ „ 1917	..	..	12c.—14¼c.

SUGAR.

Shipped for the Month of August, 1923.

To all countries	..	..	673 lbs..
Shipped previously	...	..	71,479,485 „
Total from 1st January	..	..	71,480,158 „

To same date 1922	..	..	108,904,944 lbs.
" " 1921	..	..	95,164,600 "
" " 1920	..	..	104,148,116 "
" " 1919	..	..	76,845,282 "
" " 1918	..	..	74,155,200 "

London Quotations for Demerara Crystals:—

1st August per lb.	..	..	58/—60/-
2nd " " "	..	..	57/—59/6
30th " " "	..	..	54/—59/-
At same date 1922	..	..	42/6— 45/6
" " 1921	..	..	51/— 50/-
" " 1920	..	..	130/—129/-
" " 1919	..	..	57/9— 90/-
" " 1918	..	..	57/9
" " 1917	..	..	46/9
" " 1916	..	..	40/1½—43/1½
" " 1915	..	..	24/- —28/6
" " 1914	..	..	26/- —30/-
" " 1913	..	..	14/- —14/9
" " 1912	..	[. .]	19/6 —16/6
" " 1911	..	[. .]	16/9 —18/9
" " 1910	..	[. .]	17/6 —18/9
" " 1909	..	..	16/6 —15/6

New York Quotations, Crystals:—

1st August per 100 lbs.	..	6.97
3rd " " " "	..	6.41
4th " " " "	..	6.20
9th " " " "	..	6.00
16th " " " "	..	6.15
21st " " " "	..	5.81
31st " " " "	..	5.81
At same date 1922	..	5.81— 4.92
" " 1921	..	4.86— 4.61
" " 1920	[. .]	16.30—12.04
" " 1919	[. .]	7.28
" " 1918	[. .]	6.05½
" " 1917	..	6.95— 7.40

MOLASSES.

Shipped for the Month of August, 1923.

To all countries	2,259 gals.
Shipped previously	86,832 ..
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Total from 1st January	89,091 ..
To same date 1922	113,601 ..
" " 1921	57,471 ..
" " 1920	422,271 ..
" " 1919	..	..	236,475 ..
" " 1918	..	..	295,636 ..

RUM.

Shipped for the Month of August, 1923.

To all countries	..	..	1,056 ..
Shipped previously	..	..	22,016 ..
<hr/>			
Total from 1st January	..	..	23,072 ..
At same date 1922	..	..	22,853 ..
" " 1921	..	..	161,286 ..
" " 1920	..	..	42,339 ..
" " 1919	..	..	123,632 ..
" " 1918	..	..	122,707 ..

COCONUTS.

Shipped for the Month of August, 1923.

To all countries	1,102,035 nut
Shipped previously	6,746,830 ..
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Total from 1st January	7,848,865 ..

To same date 1922	12,184,779	„
„ „ 1921	12,975,281	„
„ „ 1920	15,834,599	„
„ „ 1919	..	..	19,419,280	„
„ „ 1918	..	..	13,647,757	„
„ „ 1917	..	..	9,206,862	„
„ „ 1916	..	..	10,103,315	„
„ „ 1915	..	..	8,140,270	„
„ „ 1914	..	..	10,863,917	„
„ „ 1913	..	..	8,941,992	„
„ „ 1912	..	..	10,615,258	„

COPRA.

Shipped for the Month of August, 1923.

To all countries	701,460	lbs.
Shipped previously	7,816,205	„

Total from 1st January	8,517,665	„
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To same date 1922	6,015,598	„
„ „ 1921	2,962,650	„
„ „ 1920	1,195,010	„
„ „ 1919	1,605,522	„
„ „ 1918	3,710,846	„
„ „ 1917	..	..	4,679,352	„
„ „ 1916	..	..	2,156,734	„
„ „ 1915	..	..	2,835,708	„
„ „ 1914	..	..	999,046	„
„ „ 1913	..	..	825,266	„
„ „ 1912	..	..	2,464,616	„

ASPHALT.

Shipped for the Month of August, 1923.

To all countries	23,919	tons
Shipped previously	95,302	„

Total from 1st January	119,221	„
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To same date 1922	94,097 tons
„ „ 1921	67,011 „
„ „ 1920	63,744 „
„ „ 1919	40,155 „
„ „ 1918	31,454 „
„ „ 1917	63,708 „

OIL.

Shipped for the Month of August, 1923.

To all Countries	..	..	8,903,901 gals.
Shipped previously	..	..	53,168,599 „

Total from 1st January ..	..	62,072,500 „
To same date 1922	..	31,685,800 „
„ „ 1921	..	26,541,833 „
„ „ 1920	..	24,952,961 „
„ „ 1919	..	32,257,486 „
„ „ 1918	..	28,566,276 „
„ „ 1917	..	20,531,204 „

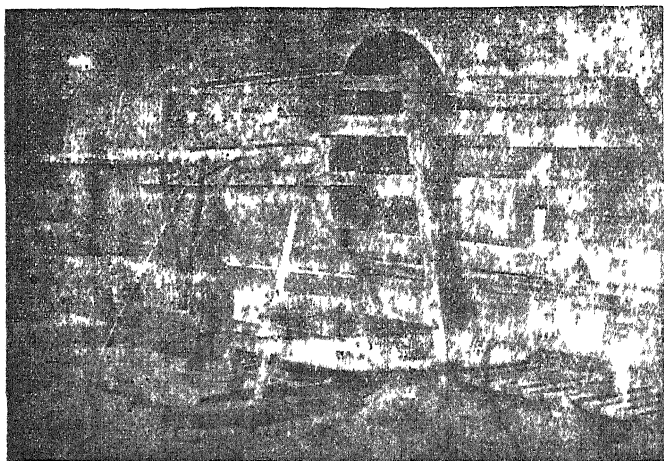


Rainfall for August, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		ERIN		KING'S BAY TOBAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1	80	...	20	...	03
2	...	04	...	...	...	40	...	26
3	01
4	...	12	...	15	...	...	...	...
5	...	10	...	...	...	...	...	03
6	07	...	...	...	...
7	25	...	...	...	03
8	04
9	30	...	...	...	13
10	12	...	56
11	1	65	...	...	...	28	...	44
12	...	45	...	73	...	09	...	25
13	...	18	..	47	...	08	...	40
14	1	33	..	...	...	42	...	58
15	...	08	2	11	1	23	..	33
16	...	29	...	20	...	18	...	94
17	...	13	..	60	...	...	...	...
18	..	02	...	...	...	...	...	...
19	...	21	..	10	...	40	...	...
20	1	65	...	05	...	84	...	47
21	...	25	...	60	...	37	..	18
22	...	65	...	20	...	50	...	03
23	...	35	...	55	...	20	...	19
24	...	03	...	22	...	04	...	03
25	22
26
27	10
28
29
30
31	10
TOTAL	7	53	7	40	5	35	5	30

Note—	August	1922	..	..	..	7	.00
"	"	1921	..	..	..	6	.21
"	"	1920	..	..	..	8	.83
"	"	1919	..	..	..	9	.69
"	"	1918	..	..	..	12	.97
"	"	1917	..	..	..	12	.49
"	"	1916	..	..	..	16	.65
"	"	1915	..	..	..	9	.46
"	"	1914	..	..	..	4	.40
"	"	1913	..	..	..	6	.65
Years—Total		1922	(at Lewisville)	..	81	.16	
"	"	1921	..	..	78	.79	
"	"	1920	..	..	59	.07	
"	"	1919	..	..	60	.19	
"	"	1918	..	..	70	.58	
"	"	1917	..	..	78	.64	
"	"	1916	..	..	69	.41	
"	"	1915	..	..	70	.57	
"	"	1914	..	..	54	.86	
"	"	1913	..	..	65	.85	

A GOOD COMBINATION.



Cooper's

SPRAYING MACHINE

Cooper's

CATTLE DIP.

AGENTS:

T. GEDDES GRANT, LIMITED.

Proceedings of the Agricultural Society

SEPTEMBER-OCTOBER, 1923.

ISOLATED FREE TRADE OR INTELLIGENT PROTECTION.

Cobden's definition of Free Trade was "A free interchange of commodities amongst all Nations."

A simple and admirable formula which should commend itself to reasonable men.

But when, as at present, Great Britain is somewhat isolated in following this principle this is quite another matter. It is then not Free Trade nor Fair Trade and handicaps some of her industries; particularly perhaps as regards certain staple products in the Dominions and the Colonies

Two very great Statesmen can be quoted as recognizing this fact—one an enemy and the other a very great Briton and Imperialist.

Bismarck reversed the Free Trade policy of Germany and advocated and substituted "Intelligent Protection," the following extract from Fortnightly Review of February 1919 reads as follows :—

"Bismarck also reversed the old "Free Trade" policy" (which was after all only an internal Free Trade) and "fostered commerce by "Intelligent Protection." He "knew that such Protection can found Navies, that

“Navies empower the mastery of the sea that sea lord-
 “ ship wins Colonies and that Colonies aggrandize
 “ Trade.”—(Extract from “Essence of Bismarck by
 Walter Sichel, Fortnightly Review, 1919 February.) ”

Joseph Chamberlain who is revered and esteemed
 in the West Indies as the greatest Statesman of our time
 saw this as clearly as did Bismarck and advocated “Fair
 Trade within the Empire” which is really only another
 name for Bismarck’s “Intelligent Protection!” Walter
 Sichel goes on to say :—

“ German Commerce was organized on an undreamed of
 “ scale a scale that won gold by credit instead of credit
 “by gold and was to pave the way for a More Tremendous
 “ War!”

A few more years of that Intelligent Protection
 which has also been called “Peaceful Penetration” by
 Germany at the expense of Great Britain and her Do-
 minions and Colonies and where would Great Britain
 have been?

Let us take the case of Sugar alone and this small
 Agricultural Colony and the Sugar Interests only here
 “as a straw which shows the way the Wind blows.”—
 and let us try and arrive at the immense loss of Trade
 to the Old Country indicated by the serious loss to this
 small Colony!

During the past fifty years there has been practically
 no increase in the quantity of Sugar exported from this
 Country (Trinidad). This very much because of bounty
 fed German Beet dumped into the Home Market which
 helped to build the German Navy and Mercantile Marine
 and absolutely prevented the increase of Exports of
 Sugar from the Colonies and caused the closing of Re-
 fineries in Great Britain.

In 1875 I think Trinidad made about 75,000 hogs-
 heads of Muscavado Sugar (say 56,000 tons at $\frac{3}{4}$ ton per
 hogshead.

In 1923 our Island Crop was 41,600 tons.

These figures are very significant when considering that in a small Colony such as this it is only a straw indicating the way the Trade wind has blown!

I think that any reasonable man will admit that considering our large area of fertile land not yet alienated, and a great deal which has been alienated and is still idle particularly well adapted for growth of Sugar Cane, that if we had fair play in the past this little Colony should have been making 200,000 tons of Sugar now instead of 40,000 tons.

The dumping of cheap German Beet, Intelligently Protected, was the obstacle to our progress.

If this little Colony had belonged to U.S.A. is it to be supposed that our Trade in a staple product such as Sugar would have been allowed to remain stationary for fifty years!

The answer is ready to hand, look at what the U.S.A. has done for Cuba in a few years of a Protectorate and also for Porto Rico and you will see that my estimate of progress which should have been made by us is a modest one.

And what an enormous difference in Trade with the Mother Country in Sugar Machinery and vast quantities of supplies and merchandise of all kinds is indicated in the making of an additional 150,000 tons of Sugar here.

And what an enormous sum of money has been lost to the British working man in Bristol, Glasgow and all over the Old Country and which was diverted and went to Germany to build their Navy and Mercantile Marine and help them to found prosperous Colonies. I think this must be admitted.

And this is a small Colony only, and must be taken only as a straw which shows the way the (Trade) wind has blown!

The Peaceful Penetration of Germany, at the expense of Great Britain's Dominions and Colonies, if continued for a few years longer, might have had an even worse result than has been experienced!

Free Trade is quite sound if followed by all Nations but Isolated Free Trade is not sound or Intelligent in certain ways, and handicaps certain Industries in the Dominion Colonies and in the Old Country.

"Intelligent Protection" or "Intelligent Free Trade" are one and the same and can better be defined as "Fair Trade," and should appeal to a Briton's sense and love of Fair Play!

We are entitled to suggest the possibility that if the Trade between Great Britain and her Colonies had been very materially greater, as should have been the case, there might have been no question of Unemployment in the Old Country to-day!

May not this question even now be solved by Intelligent Protection?

Note.—Island of Formosa in Japan.—The Government afforded generous assistance. Prior to 1902 production had not reached 60,000 tons of sugar, in 1916 it reached 406,000 tons of sugar—Increase of 346,000 tons in 15 years.

Island of Trinidad 1902—57,334 tons of sugar and in 1923, 41,619 tons—A Decrease of over 15,000 tons in 21 years.

The Island of Cuba, before the war with America, in 1894 produced 1,054,214 tons of sugar. In 1897 the production dropped to 212,051, due to the war, peace being declared the same year. In 1900 the production rose to 283,000 tons and in 1900 to 1,804,000—last year it was 3,996,387 tons. In 1900 Porto-Rico made 62,000 tons of Sugar, in 1922 the output was 365,000 tons. See what American protection and Capital have achieved for these Islands. The same can be said of the Philippine Isles.

*(SOCIETY PAPER No. 800).***CACAO PRODUCTION.**

*A Paper read by the Hon'ble Director of Agriculture,
at the Meeting, on River Estate, 11th October, 1923.*

As they were all only too painfully aware cacao planters in the Colony are passing through very anxious times. The world's market price of cacao was very low. Doubtless that was due to more than one cause, but prices of most products were largely regulated by supply and demand. Taking the last nine years (1914-1922) they found the world's production of cacao given as 149,900 and the consumption as 103,500 tons. There was hope for a better condition of things inasmuch as in the years 1921 and 1922, although production was higher in both years than in 1920, consumption increased still more, and these two years reduced the balance of over production by 51,000 tons, i.e. whereas at the end of 1920 the excess of production over consumption was 97,500 tons at the end of 1922 it was 46,400 tons. With a settlement in European conditions it was probable that consumption would shortly overtake production, and so result in better prices.

So far as production was concerned they had to face the fact that our competitors were not foreign countries, but other parts of the British Empire, who naturally get, as they did, any preference on British products. The British Empire produces the greater part of the world's cacao, and yet instead of being able to control it to the best advantage of the Empire as a whole, it is forcing production to the disadvantage of all concerned. Compare the figures for production and consumption in the British Empire for 1914 and 1922.

	1914	1922.
	tons.	tons.
Production	103,000	235,000
Consumption	32,000	59,000
Surplus to be disposed of ..	71,000	176,000

In 1922 the British Empire had over 100,000 tons of cacao more than in 1914 for which it was necessary to find markets outside the Empire, at a time when the purchasing power of most other countries was low.

It was admitted that the Gold Coast, by far the greatest producer in the British Empire at present, can put cacao on the market at a very cheap rate. Also that although it is an inferior quality of cacao, it will naturally, because it is cheap, be used to a larger extent, so far as it is practicable. To enter into successful competition two courses seem open. (1) To produce a cacao of a quality for which manufacturers are prepared to pay a higher price. (2) To increase our profit by producing larger crops on the same acreage, and reducing cost of production.

Improvement in quality was being attempted in one or two cases in the Colony by the selection of cacao. It is not immediately practicable by those who have already established estates, and in their cases attention has to be restricted to producing as high a grade of cacao as is possible on lines which have been urged recently by the Cacao Planters Association, namely:—

Removal in breaking of unripe and diseased pods.

Cleanliness in the sweat boxes.

Careful fermentation for 8 days.

Cleanliness in the drying houses.

Removal of waste, and broken beans etc.

The second point, can we increase our ~~profits~~ per acre, is worthy of careful attention by all planters.

They had had demonstrated to them once again to-day, the fact that cacao trees vary greatly in their yield—there are naturally heavy, medium and poor bearers. They had also seen the experiments in progress to test how far these bearing qualities are hereditary. In one field you visited there were 187 young trees, seedlings

of one parent tree, No. 4927 on the estate. That tree has a remarkable record. Its yield of pods per annum for the last eleven years has been :—

1912/13	404
13/14	328
14/15	299
15/16	294
16/17	234
17/18	324
18/19	495
19/20	385
20/21	224
21/22	231
22/23	392
	<hr/>
	3,610
	<hr/>

This is an average yield of 328 pods per annum. It is not one of the best varieties and 13 to 14 pods are required to yield 1 lb. of dry cocoa bean. Allowing 14, the yield is 23½ lb. of dry cacao a year, 150 bags of cacao to the 1,000 trees, or one bag of cacao from seven trees, so that if planted 15 ft. by 15 ft. giving 180 trees to the acre, the yield would be 26 bags per acre, in place of the more usual 3½ to 4 bags.

Commercial development of high yielding strains has been accomplished with other plants, and, as you are aware, the Department holds the view that similar success with cacao is possible. The six acre plots of seedling, budded and grafted trees from selected heavy bearers, and the results already obtained on Mr. Mac Clean's estate at Siparia with budded plants from heavy bearers supplied by the Department are encouraging.

There is also the line of work under trial at River Estate of cutting out the trees which yield so badly that

they are an expense and not a profit to the estate. That with reasonable attention to cultivation and sanitation, including shading, returns much above the average can be obtained is shown by the pickings this year in Field 5 where from 1,500 trees (500 shade, 500 partial and 500 no-shade) 8 bags per 1,000 trees were obtained at each of three successive pickings, i.e. 24 bags per 1,000 in three pickings.

The practical point common to these various lines of work, is the endeavour to find the means of producing more per tree and per acre. It costs as much, to cultivate an acre of poor bearing trees as an acre of heavy bearing trees, and from the poor bearers the profit is obviously much less. People who invest money in shares are careful to choose those which pay the higher rate of interest, but in cacao many continue to invest money apparently without considering whether they are getting 20, 10 or 5 or nothing per cent. on their outlay.

The other way to obtain more profit is to cheapen production.

From experience with other orchard crops and also with cacao it was established that cultivation of the soil is beneficial. Hand forking is, however, expensive, costing about \$9.00 an acre. You have seen to-day a plough at work in cacao. The experiment was a new one, but under conditions at River 2 acres can apparently be ploughed and subsequently gone over with a cultivator, at a cost of about \$1.50 say \$2.00 or \$1.00 per acre. Reduction of shade which they had been practising and advocating for some time, should be accompanied by increased cultivation. With the use of animal-drawn ploughs and cultivators this will be practicable with a large reduction in cost and increase in efficiency, for hand forking was often very badly done. They hope to develop that line of work where conditions were already suitable or could be made suitable.

COST OF PRODUCTION.

With regards the question raised by the President, at the meeting as to the actual cost of production there, Mr. Sheult had just given him a note. It was prepared up to September 30th. Up to then they had reached on the estate 1,180 bags of cocoa. Expenditure including Manager's salary, worked out at \$10.09 a bag. If they included experimenting with, etc., it came to \$10.68, and other things being included would bring the total cost of production to no more than \$11.00, but the actual cost worked out at \$10.09 per bag.

(o)

GENERAL MEETINGS.

Minutes of the General Meeting of the Society held in the Council Chamber on 13th September, 1923.

Present :—Messrs. W. S. E. Barnardo, President in the Chair, Messrs. C. Fleming, A. V. Stollmeyer, A. F. Clarke, Lieut.-Col. Collens, S. Medford, H. W. Brathwaite, Captain Gooden-Chisholm, J. Mungal, H. Gajadharsingh, C. A. Palmer-Chizzola, G. C. Wyatt, L. J. B. Luke, C. M. Samlalsingh, E. Radcliffe Clarke, C. P. Rojas, Captain A. A. Cipriani, G. de Nobriga, A. A. Sobrian, E. A. Robinson, Wm. Nowell, Assistant Director of Agriculture, Hon'ble W. G. Freeman, Director of Agriculture, M. Hamel-Smith, Doctor Gibbon, Major R. Rust, A. G. Bailey, F. Anduzé, Mr. Wilson-Goode, H.M. Trade Commissioner, Sir F. Watts, Principal Imperial College of Agriculture, L. De Verteuil, Secretary.

Minutes :—The Minutes of the General Meeting of 9th August that had been circulated, were confirmed.

Correspondence :—The Secretary read a letter from the Acting Colonial Secretary in connection with the proposed visit of the British Legislators informing the Society that the Secretary of State had approved of an expenditure of £1,000 being incurred to meet the cost of Hotel accommodation of the Delegates during their stay.

in the Colony and that the Acting Governor proposes to appoint a Committee to make the necessary arrangements for the entertainment of the Visitors and asking as to which of its members the Agricultural Society would desire should be appointed on the Committee. By the proposed itinerary, the Delegates will be in Trinidad from the 13th to the 19th January, 1924.

On the suggestion of Mr. E. A. Robinson, seconded by Mr. Jas. Mungal, Mr. W. S. E. Barnardo was unanimously requested to serve on the Committee, which he accepted.

Another letter was read from the General Secretary of the British Empire Producers' Organisation, with regard to organizing a campaign throughout England in favour of the products of the Empire and their preferential treatment and asking for the loan of lantern slides or Cinema films which will illustrate the character of the Industries and the general condition under which goods are produced.

On the suggestion of Mr. Nowell, the matter was referred to the Director of Agriculture who was willing to place at the disposal of the Society, certain lantern slides of the produce of the Colony. On the motion of Mr. Fleming, seconded by Mr. E. A. Robinson, the matter was referred to the Director of Agriculture. Major R. Rust kindly offered to assist with photographs and lantern slides he had. Major Rust left for London on the 25th September and has kindly consented to deliver to the Secretary of the West India Committee, what could be obtained in the lines required by the B.E.P.O.

Agricultural Bank :—At this stage of the Meeting Captain Cipriani asked leave to withdraw his original motion of 14th June last. The President said that Captain Cipriani was acting rightly in view of what has

since taken place. As a result of Captain Cipriani's action, Mr. E. A. Robinson's amendment, which was on the Agenda for debate fell.

Captain Cipriani then formally moved:

“ That this Society approve of the establishment of an Agricultural Bank as sanctioned by the Secretary of State for the Colonies in his latest despatch and pledge its support to the Government in carrying out the measure, and place on record its appreciation of the interest taken in and the work done by His Excellency Sir S. H. Wilson towards its establishment.”

In moving this resolution Captain Cipriani said that he did so with a great deal of satisfaction and not a little pride, not because of anything that his friends and himself might have done in advocating the establishment of an Agricultural Loan Bank but rather because it appeared to him that this was a great Imperial awakening the far reaching results of which would make a great difference to life and prosperity of industrial Trinidad. The wringing of Representative Government and an Agricultural Bank from the Imperial Government in the same year, he thought was a feat of which every inhabitant of this colony might be justly proud. It was proof that the Imperial Government had at last begun to realise that these far flung outposts of the Empire were also entitled to a meed of consideration and he considered it the duty of this society not only to approve of the action of the Secretary of State for the colonies in sanctioning the establishment of an Agricultural Loan Bank but to go one step further and pledge its support to the successful carrying out of the measure. In pledging that support, he hoped that they did not forget the man who by his ardent and earnest advocacy had made it possible for this colony to-day to receive that great boon. He referred to Sir Samuel Wilson who from the very outset put his heart and soul in the scheme and finding it a workable

and practicable scheme set his every energy to bring it about. The first step made met with some little failure but not being daunted His Excellency the Governor took the fight home in person to Downing Street and there convinced the Secretary of State for the Colonies that the establishment of an Agricultural Loan Bank was the only saviour of this colony and for that, they, the inhabitants of this colony owed him (His Excellency) an everlasting debt of gratitude. He thought the least that the Society might do was to place on record their deepest appreciation of a good work, well done. In the flush of victory he did not propose to criticise any of the specious arguments put forward by the opposition or to make any comment on the extraordinary figures. The best answer to the opposition was, he thought, in the Trinidad Building and Loan Association. This was an Association worked with local capital, staffed by local people and under local directorate and its soul was amortization and under that scheme the Building and Loan Association had prospered and was today a veritable Gibraltar against the mortgagee, the bank and the Gibraltar against the mortgagee, the bank and the usurer. It had enabled small men and small householders to become proprietors in their own right of the shelter which covered their family and children, and anyone looking upon this would see that the amortization of the Agricultural Loan Bank, would do the same for the cocoa proprietors who had tilled the soil for over a hundred years and would enable them and their children to-day to own the few square feet of land they held.

The establishment of the Agricultural Loan Bank has set a new era, marked out a new epoch in the history of industrial Trinidad but let us not take it to mean that we are to sit still and expect the good things of life to fall into our laps. This is a moment for action, a moment for every planter in Trinidad to put his foot forward and do his all in all to make the Agricultural Bank the unqualified success we had hoped for.

Shakespeare, he thought was responsible for the following words: "There is a tide in the affairs of men which, taken at its flood leads on to fortune." This is the tide in our affairs, the speaker went on, and if we take it at the flood, it would lead on to fortune. Let us live on, let us realise our responsibility and let us take this tide in our affairs at its flood.

He realised like most of them realised that there are

TWO STUMBLING BLOCKS

to cocoa; one the European situation and the other the West African competition circumstances over which they had no control prevented them from really tackling the present condition of the former. But he didn't see that there was any real reason for the pessimistic wave which seemed to spread over the colony. The Ruhr deadlock was breaking down and they were told when things reached breaking point they generally mend. Well, let us hope so, let us give up the idea of seeing cocoa at \$12 or \$15 again until the Central Powers come back into the market. But even they in their great plight did not seem to be over pessimistic; he had before him some German propaganda dated 14th July and there was an article in it on cocoa and chocolate and its heading was "Delicious dainty food for the masses" and here they might take a leaf out of their book and use the slogan "Food for the masses." That's the proposition which they must take up in this colony and take up seriously and he put it to them that the place to begin this propaganda was right here in Trinidad. They must get to work and impress upon their own people that cocoa was one of the greatest foods on earth, the food of the masses taken to the great cities throughout the world and by this means alone it could be hoped they would increase its consumption.

Now, he came to the question of West African competition. Like reasonable men he asked them if they would not infer that this extraordinary propaganda was an attempt to convince them of their

stability, when as a matter of fact it was a sign of uneasiness, a sign of weakness. There were several factors which when they came to understand them that West African competition was not so great as to dishearten every cocoa planter in Trinidad. They here were satisfied at least like practical planters that cocoa in any part of the world was subject to certain diseases and they knew that these diseases would prove more fatal to cocoa in areas that were neglected or uncultivated and in West Africa these areas were uncultivated and neglected. And there was yet another position which called for serious thought. They knew that it cost so much to produce cocoa and they knew the price at which West Africa could sell cocoa, and it would be impossible for us to compete on account of local conditions. But what were the labour conditions in South Africa.

The Chairman here interposed and told the speaker that he had better confine himself to the resolution. They were not discussing labour conditions in West Africa. They were discussing the Agricultural Bank and he thought the speaker was rather wandering into bye-laws.

Captain Cipriani said he seemed to be very unlucky with the Chairman's ruling. He was prepared, however, to bow to his rulings.

The Chairman replied that they could go on quite nicely without straying from the point.

Captain Cipriani said he did not think there was any harm and he would pardon him if—

The Chairman: But labour conditions in Africa has nothing to do with the establishment of this Bank here..

Captain Cipriani: Do I understand you to say that you will not allow me to continue.

The Chairman: Oh no not at all, but confine yourself to the Agricultural Bank here.

Captain Cipriani continuing his speech said it was quite clear that unless they were prepared to fight the things which to-day threatened to throw their cocoa out of competition, the Agricultural Loan Bank would prove

of very little value in this colony. There were factors which must be fought from the same difficult angle and it was only an Agricultural Loan Bank which could relieve this situation. The president, however, would not allow him to discuss these things and he must pass on. That this colony was indebted to Sir Samuel Wilson for the part which he had played in the establishment of the Agricultural Loan Bank admitted of no doubt whatever and he hoped that they would not be ungrateful to the man who had done so much to bring it about. He felt that he would be wanting in his duty if before closing his remarks he did not refer to yet one other champion of the great cause, Hon. R. G. Bushe (Cheers) who like a great war horse instead of retiring on his pension had come back to-day with the vitality and energy of a man half his years to support this scheme. He hoped when the time came to discuss such things as government and directorate of the Agricultural Loan Bank that Mr. R. G. Bushe would find the Society to a man at his back (Cheers). He again expressed great pleasure in moving the resolution.

Major Rust seconded the motion.

Mr. Robinson in opposing the motion again strongly criticised the proposed scheme. It had, he said, every objectionable feature that a bank could have. It was one that would be confined strictly to a limited class of agricultural people in the colony. It was entirely confined to cocoa and coconuts and to a very limited class and the number of cocoa proprietors that would be able to borrow from this bank was simply ridiculous to talk about. It was an absolute farce. For the people that would be there to borrow, there would be no money to lend. There was no money in this concern to do what really would be a good to the colony, to advance against crops. It would be a very fine work indeed if they had a bank to advance money to carry on the estates and finance people who did honest work. But this was just enough to make both fields absolutely hopeless and

worthless. There was no money to advance against crops and none to advance against mortgages on cocoa properties. What was there to rejoice about a bank of this sort? He saw not a single feature. Instead of the colony being saddled with loans of seven million, it is limited to one million. Its redeeming feature would give the colony the chance of reviving because its capital was limited to £225,000. The time would come when instead of praises being given to the Governor who had induced the proposal of this scheme, he ventured to say, it would be one of the worse things that was ever done to the colony and they would soon realise the mischief it would do. It was going to cost this colony twenty thousand a year. Why should they have a bank for the cocoa industry alone? Why not the fruit industry as well? Only the cocoa man was to be found in this bank. There they deliberately shut down and exclude chances of starting new industries in this colony when new industries were so much wanted. He would not talk about his figures. They were prepared by him and he had not seen anybody yet who had proved that they were wrong. Continuing, the speaker touched on Captain Cipriani's comparison between this proposed bank and the Building and Loan Association. It was not analogous to this bank. As he was one of the three men who established this latter society and being one of the directors for at least ten years, he was prepared to say that it was really the only successful Association in this colony. He thought he should know at least the difference between this and the bank; there was no analogy whatever. He opposed this motion and said that there was nothing to be thankful for. They had absolutely nobody to thank for saddling the colony with this sort of one horse affair. It was doomed to failure. If they asked whether the Legislative Council would sanction it he would still insist in opposing it, but should the Council also approve of the establishment as a loyal citizen he was bound to do his best to try and make it

anything but a failure. But he still thought that it was a ridiculous scheme and would do no good to the colony. He had his own opinions and it was his duty to express freely and to force his views as far as he could to prevent wrong laws being enacted. But he would say again that once they were enacted, it was his duty as a loyal citizen to do his best to make it a success.

Mr. Radcliffe Clarke spoke in support of the motion in the course of which he thought that this was a British colony and as such there need not be rejoicings for the granting by the Home Government of our rights which we were entitled to.

Before putting the motion to the vote, the Secretary read a letter from Mr. Henry Warner who had sent in notice of a motion similar to that of Captain Cipriani's.

The motion was then put to the meeting and carried by a large majority, the only dissentients being Messrs. Robinson, Fleming and Medford.

Visit to River Estate :—The Chairman announced that on the occasion of the next Meeting, the Society would pay a visit to River Estate. He asked all Members who intended to attend to communicate with the Secretary as early as possible.

At 3 p.m. the Meeting came to a close.

L. DE VERTEUIL,

Secretary.

Confirmed,

W. S. E. BARNARDO,

President.

Minutes of the General Meeting of the Society, held at River Estate on October 11th 1923.

Present :—W. S. E. Barnardo, President, Sir Francis Watts, K.C.M.G., Hon'ble W. Freeman, Director of Agriculture, Wm. Nowell, Assistant Director Agriculture, A. Cory Davies, G. C. Wyatt, A. V. Stollmeyer, Jas. Mungal, A. A. Sobrian, Doctor C. F. Lassalle, J. B. Luke,

H. Gajadharsingh, A. G. Hamlyn, A. F. Clarke, F. Brown, V. Stauble, C. P. Rojas, E. Radcliffe-Clarke, H. Samlalsingh, K. Simpson, J. J. Halliday. Wm. Dickson, A. G. Bailey, F. Stell, F. W. Urieh, J. Seheult L. Seheult, L. A. Brunton, R. O'Connor, Hon'ble R. G. Bushe, C.M.G. and Professors Dunlop and Harland of the Imperial College of Tropic Agriculture, J Wilson Goode, H.M. Trade Commissioner, C. Scudamore of the United Fruit Co. and L. de Verteuil, Secretary.

On arrival at the Estate, the Members were met by Messrs. Louis Seheult and R. O'Connor, Superintendent and Manager of the Estate.

Headed by the Director, the gathering took the field and two and a half hours were spent in visiting different fields, especially those where experiments were carried on, such as ploughing, budded and grafted plots, seedlings from known heavy bearers, some with shade and some without shade, distance planting experiments, shade and no shade fields, citrus fruit cultivation with budded oranges and grape fruit, grafted mango plots. An interesting experiment for the destruction of Immortelle trees, consisted in removing the bark a width of 4 or 5 inches, 3 or 4 feet from the ground and treating the exposed part with a 10% solution of arsenate of soda, the same active principle, which is contained in Cooper's dip. Four or five days after the treatment, the tree had already begun to shed its leaves and it is expected that it will be killed in a short time.

Luncheon was partaken at 1 p.m. At the end of the Luncheon, Mr. E. Radcliffe-Clarke referred to some samples of Chocolate manufactured by Mr. A. A. Sobrian on his Estate at Siparia, which he considered was a first class article of food and should be more largely consumed in the Colony. The samples were much appreciated by the Members who had occasion of tasting a cup of the chocolate prepared for the occasion.

Mr. W. S. E. Barnardo, President of the Society returned thanks to the Director of Agriculture and to

Messrs. Scheult and O'Connor for the way they had been entertained and shown round the Estate and admiring the work which was going on. He referred to the cost of production, under normal Estates condition, exclusive of the experimental work, which Mr. Freeman had promised on a former occasion, to obtain for them. These figures were not yet tabulated, but Mr. Freeman will be able to give them, the cost of the ordinary run of the Estate work.

The Hon'ble Director of Agriculture, then expressed the great pleasure it gave him to receive Members of the Society and all those who wanted to get information as to the experiments carried on at River Estate. He read a paper at the Meeting which is published in the Proceedings of September-October as Society paper No. 800 and which contains interesting data regarding the Cacao Industry.

Mr. E. Radcliffe Clarke expressed his great satisfaction to go round the cultivation and see the manner in which the work on the Estate is being carried on. He did not agree with the Director as to the value of the statistics regarding the production and consumption of Cacao—these related to what was received in Great Britain, but we must look outside of the British Isles to gauge the production and consumption of the world—the United States being our largest consumers. Judging by the world stock of Cacao, there is evidence that during the past three years, the Stocks have decreased considerably, showing that this Cacao must have been consumed. He also referred to West African production and to the method of fixing the price of the Cacao, by which the farmer on the spot, was bound by the price offered by the Capitalist or the Manufacturer, leaving no play to the laws of offer and demand.

Minutes :—At this stage, the Minutes of the meeting of 13th September which had been circulated, were confirmed.

Agricultural Conference :—A letter received from the Acting Colonial Secretary was read. It related to an Intercolonial Agricultural Conference to be held in Jamaica in January 1924 and the Society was invited to say whether it would care to nominate a delegate to represent it at the Conference.

As there was doubt as to whether the Society would have to bear the whole cost of sending a delegate it was decided to postpone the consideration to the next Meeting.

Fruit Cultivation :—Mr. A. V. Stollmeyer referred to the presence amongst them of Mr. Scudamore representing the United Fruit Co. and who was on a mission to Grenada in connection with the banana cultivation. He thought he might be able to give them some information on the matter and whether bananas could be successfully grown here.

Mr. Scudamore, after explaining the object of his visit, was rather reticent in giving any decided answer to the query, but would like to know the cause of failure of the previous attempt to plant bananas.

Mr. A. F. Clarke thought that the failure of the banana Industry in the Island was due to Planters not taking any interest in the industry and preferred to plant Cacao, from which they got more money—he also referred to the Panama disease, which caused damage to the "Gros Michel" variety of bananas, which was very susceptible to the disease. The question of shipping was important and unless Planters were prepared to guarantee a certain amount of bananas for cargo, they would not get the United Fruit Co. to come forward.

Mr. A. A. Sobrian thanked Mr. Radcliffe Clarke for what he had said, on the Chocolate manufactured by him. Mr. G. C. Wyatt joined issue and said Mr. Sobrian should be supported by the Members of the Society.

Mr. Mungal said that the Society should take advantage of the visit of the Parliamentary Delegation, to bring before them the possibilities of the Island for the investment of Capital in certain Industries.

The Hon'ble R. G. Bushe expressed his great pleasure at being present at the Meeting and thanked the Director of Agriculture for the welcome given him—he was glad of the opportunity of gaining information and increasing his interest in the various aspects of Agricultural problems that came his way at the present time.

Mongoose Trap :—Doctor Lassalle exhibited a Mongoose trap designed by Mr. Monseque of Toco. He explained that the special feature of the trap was the bait of a live chicken, which was never reached by the Mongoose—whilst the latter was caught, by touching a spring. It could be obtained at Messrs. Leon Mathieu & Co.

L. DE VERTEUIL,
Secretary.

Confirmed :

W. S. E. BARNARDO,
President.

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COMMITTEE MEETING.

Minutes of the Meeting of the Committee of Management, held in the Council Chamber on 13th September at 10 a.m.

Present :—Mr. W. S. E. Barnardo, President in the Chair, Messrs. C. Cleaver, A. A. Sobrian, S Medford, W. G. Wyatt, C. Fleming, E. Radcliffe Clarke, A. V. Stollmeyer, C. P. Rojas, Captain Gooden-Chisholm and L. de Verteuil, Secretary.

Excursion to River Estate :—It was decided, that the next General Meeting of the Society, should take the form of a practical demonstration to the River Cacao Estate.

Campaign throughout England in favour of the products of the Oversea Empire :—The Secretary read a letter from the General Secretary of the British Empire Producers' Organization enquiring if lantern slides or Cinema films, could be procured, to illustrate the character of the Industry of the Colony and the general conditions under which goods are produced and exported. The idea is to interest individual consumers throughout the Country in the development of Empire supplies and to induce them to ask specifically for Empire goods. It was decided that the letter should be read at the General Meeting.

Continuation of the debate on Mr. Hamel-Smith's Memorandum :—After careful consideration of the memo, the Committee came to the conclusion that while they consider, that the suggestions, if feasible, are quite good ones, the condition of the Cacao Market and the depressed financial state of the Colony did not permit of a cess or tax of \$1.00 per bag—even allowing the collection to spread over two years at the rate of 50 cents a bag a year—to be imposed at the present time. Mr. Hamel-Smith was thanked for these suggestions and any further thoughts he may entertain for the amelioration of existing conditions and which could tend to the stability of the industry for the future would be thankfully received.

Letters addressed to the W.I. Committee and to the British Empire Producers Organisation :—Two draft letters written by Mr. E. Radcliffe Clarke were submitted to the Committee for approval or alterations. The object of these letters is an endeavour to obtain that the W.I. Committee and the British Empire Producers' Organization arrange for convoking a conference of Cacao Producers and Manufacturers of Chocolate, on the occasion of the coming British Empire Exhibition, to discuss the parlous condition of the Cacao Industry and to decide what (if any) united action should be taken to secure

a fair return to the producers. The letters were appended and were signed by the President and the Secretary was instructed to forward them.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

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REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

NAPARIMA.

The regular monthly meeting of the Naparima District Agricultural Society was held at the Town Hall, San Fernando, on Monday, 19th March, 1923, when there were present:—Mr. J. C. Augustus, Vice-Chairman in the Chair, Messrs. H. Wickham, E. C. Douglin, H. Dee, R. M. Scott, H. Stent, W. W. Bonyun (Treas) Rev. Errey, Rev. Canon Doorly, A. A. Sobrian (Delegate) T. Boodoosingh (Agricultural Adviser) and H. A. Gordon, Assistant Secretary.

Minutes :—The minutes of the last meeting were read, adjusted and confirmed.

Delegates Report :—Mr. A. A. Sobrian said that the following matters were discussed at the last meeting of the Parent Society:

- (a) Mr. Fisher's visit to the West Indies in the interest of the Empire Exhibition.
- (b) Dr. Shannon's application for the affiliation of the Goat Club.

Agricultural Adviser's Report :—Mr. Boodoosingh said that at present ground provisions were fairly plentiful. Heavy pickings of cocoa were being made. Cane Farmers need pay more attention to their preparation of the land.

Demonstration :—The Chairman announced that the next meeting would be held at Mr. Mc. Clean's estate at Los Bajos and would take the form of a Demonstration and a lecture on Cocoa Budding by Mr. R. O. Williams, Curator of the Botanic Gardens.

The meeting then terminated.

At the regular monthly meeting of the Naparima District Agricultural Society which was held on Saturday, 14th April, 1923(at Mr. H. R. McClean's estate at Los Bajos, there were present :—Mr. J. C. Augustus, Vice-Chairman, Messrs. H. Stent, A. A. Sobrian, (Delegate) R. M. Scott, A. H. Dasent, W. W. Bonyun, (Treas.) H. Dee, A. Ogeerally, Rev. Fr. Romano, B. Chapman, F. Maughn, H. Kangaloo, Geo. Mahabir, E. Douglin, H. Gordon, and A. Lakhan (Sec.)

The members were taken around the estate which consists of some 170 acres planted in seedling and budded cocoa. They then assembled at the estate house where the meeting was held.

Minutes :—The minutes of the last meeting were read and confirmed.

Delegate's Report :—Mr. A. A. Sobrian mentioned that the discussion at the last meeting of the Parent Society centred around the death of seven cows at the Queen's Park Savannah. Mr. Fisher's visit was also discussed.

The Lecture :—Mr. W. G. Freeman, the Director of Agriculture then gave a very instructive and interesting lecture on Budded Cocoa. He showed the great use of budding plants, and the stability of results therefrom.

Mr. R. O. William, Curator, Botanic Gardens followed with a paper on Budding Cocoa on Estates in which he showed how the field practice of budding was carried on, the after management needed, the results to be expected.

The Vice-Chairman and Mr. A. A. Sobrian spoke on the points raised by both speakers and expressed their opinion that the establishment of a Central Chocolate Factory locally would go a long way in ameliorating the present hopeless condition of the cocoa industry.

Vote of Thanks :—Mr. R. M. Scott moved a hearty vote of thanks to the gentlemen who had so kindly come there that afternoon to lecture to them. This was seconded by Mr. A. A. Sobrian and unanimously carried.

Mr. Dasent followed with a vote of thanks to Mr. McClean for putting his estate at the disposal of the Society. This was seconded by Mr. E. C. Douglin and carried.

The meeting then terminated.

FYZABAD.

The regular monthly meeting of the Fyzabad District Agricultural Society was held on Tuesday, September 4, 1923, at the Fyzabad C.M.I. School house. Present were: Messrs. H. Meaden (Chairman), A. Peña, (Agricultural Advisor), N. P. Gour, O. Sumesar, C. Goberdhan, C. Kalloo, F. Bhola, J. Budhoo, Rambarran, Ramkissoon, C. Bissoon, Balmakoon, three visitors and Nathaniel Goberdhan (Assistant Secretary).

The minutes of the last meeting were confirmed.

Election of Members :—Mr. J. Budhu was unanimously elected a member of the Society. Mr. Balkaran was proposed by Mr. C. Goberdhan to be a member, seconded by Mr. Nat. Goberdhan.

Correspondence :—A letter was received from Mr. Y. G. Grant giving prices of different packets of weedicide he had in stock.

General Business :—Mr. Peña read a very instructive paper on Growing of Ground provisions and vegetables. Questions were asked which called forth useful explanations by Mr. Peña. The chairman moved a vote of thanks to him, which was seconded by the

Assistant Secretary and unanimously carried. Mr. Peña replied and the paper was filed for the Society's future reference.

He further promised to write to the Botanic station for seeds of Nicaragua shade tree. There being no further business the meeting terminated.

The regular monthly meeting of the Naparima District Agricultural Society was held on Monday 28th May 1923, at the Town Hall, when there were present : Mr. J. C. Augustus, Vice-Chairman; Rev. Cannon Doorly, Rev. C. G. Errey, W. W. Bonyun (Treas.) H. Stent, R. M. Scottt, C. Sanowar H. Bobin, D. Chadee, J. Wickham, A. Ogeerally, H. Dee, J. R. Sinanan, A. Gidharry, A. E. Lakhan (Hon. Sec.)

Minutes :—The minutes of the last meeting were read and confirmed.

Delegate's Report :—Mr. A. A. Sobrian wrote stating that he was unable to attend the meeting. He sent a written report of the last meeting of the Parent Society. He reported that Mr. Rojas read a paper on Yield and cost of production of cocoa, which was discussed afterwards. M. Radcliffe Clarke made a motion at that meeting to the effect that the Cocoa Producers of the world should start a joint movement to secure fair returns for the sale of their product.

The Paper :—The Chairman said that the paper to be read that afternoon was prepared by Capt. Campbell who, members will remember visited the Colony and had spent much time in the forests investigating and finding out a great deal about the Timber industry. Capt. Campbell read the paper before the Horticultural Society in Scotland. He then called upon the Secretary to read the Paper.

Remarks :—Rev. C. G. Errey said that the paper was a very interesting one and though members may believe that it did not come under the notice still there was quite

a lot of timber being used in the Colony and it was to the interest of everyone to further their own local timber interest. Other members spoke in appreciation of the paper.

Chocolate Factory :—Rev. Cannon Doorly asked whether the Society thought that the erection of a Local Chocolate Factory on a large scale would be conducive of much benefit to the Cocoa Industry. The Chairman replied that the matter was at present engaging the attention of the Parent Society and that we should wait a little to observe what the general opinion was going to be.

The meeting then came to a close.

WINDWARD, (ROXBOROUGH), TOBAGO.

Minutes of a meeting at the Windward District Agricultural Society, Tobago, held on the 10th september at the Roxboro Court House at 4.30 p.m. Present were:—The Rev. E. Pilgrim, B.A., (Chairman), presiding; Messrs. J. B. Murray, J.P. (Deputy Chairman); A. Jones (Vice-Chairman); W. Rodriguez, H. Fraser, N. Holder, R. Douglas, C. Jack, N. McCony, W. Harper and F. J. B. Henry (Hon. Secretary).

Welcome to Chairman :—Just before the beginning of the business for the evening Mr. J. B. Murray moved, seconded by the Secretary, a hearty welcome to Rev. Pilgrim, Chairman of the Society on resuming his duties after a period of continued absence of nine months owing mainly to illness, and partially to increased personal duties which necessitated his residing at Scarborough. The Secretary in seconding the remarks of the Deputy-chairman expressed for the Chairman's information, the intense zeal and enthusiasm thrown into the work of the Society by the Deputy-chairman, Mr. Murray.

Messrs. H. Fraser, W. Rodriguez and R. Douglas expressed their sympathy with what the mover and seconder had said.

The Chairman in reply thanked the gentlemen for their welcome that day. He further expressed how glad he was that the Society had carried on its work successfully during his absence, and that feeling assured of the influence and general ability of Mr. Murray, the Deputy chairman, at the head of affairs he entertained no fears as to the satisfactory working of the Society during his absence. He commended the Deputy-chairman and the Hon. Secretary to the Society as richly deserving their (the Society's) thanks for their zeal in the work of the Society.

Minutes :—The Chairman then called upon the Secretary to read the minutes of the last meeting. They were read and confirmed by a unanimous vote, their confirmation being moved by Mr. H. Fraser, and seconded by Mr. R. Douglas.

Discussion on the holding of a Bazaar :—In accordance with the Resolution passed on the 12th June last re the holding of a Bazaar the Society turned its attention to discussing the possibilities of doing so. The Resolution was formally read. Mr. Murray said that Christmas was about the best time in his opinion for holding the Bazaar as at present things were rather dull, but by then things might brighten a bit. Mr. Rodriguez said that he did not think that the members of the Society were capable of holding a Bazaar to invite the Public of Tobago.

Mr Fraser said it was only a question of selling everything we got.

The Secretary said that persons outside of the Society might be asked to take part and help the Society. Mr. Murray said it would be better not to ask any one outside of the Society as it might cause favouritism, but, rather we should ask all persons to bring things and the Society would sell all that is brought and take 25% of the proceeds. Mr. Rodriguez said he quite agreed with what Mr. Murray had said.

The Chairman said that the Society ought simply to consider the principle, and hand over to a Committee to carry through. Mr. Rodriguez said he quite agreed and would ask that the standing Committee be given power to add say three ladies to its number.

This was seconded by Mr. Murray and carried. Mr. Murray was then elected chairman of the Committee unanimously.

Hospital for Windward District :—The motion standing in the name of A. Jones Esq. put to the Society at its last general meeting, re Hospital for Windward was then discussed.

Mr. Jones in moving the motion said that owing to the inconveniences caused the public in case of illness in this part of the island he respectfully moved that this Society approaches the Government through the Parent Society with the view to having a Hospital erected. He had known cases where persons suffering very much had to be taken to Scarborough and in many cases died because of the inconvenient mode of travelling, and of the very long distance to Scarborough, about $27\frac{1}{2}$ miles in case of Charlotte Ville people and 18 miles in case of Roxborough, and on the whole he considered this a very bad state of affairs.

Mr. Fraser in seconding said he heartily agreed with what the mover had said and he further thought that there should be more than one Hospital in Tobago.

Mr. Murray said that he was in sympathy with the motion but he did not think that the Government, at present would be able to meet the desire of the Society in erecting a hospital: that it might be possible to give motor-ambulances, but, a hospital was somewhat more than what he thought the Government could do at the present time.

Mr. Harper said that the population was increasing and the wealth of the island was increasing and in his opinion one hospital in Tobago was not enough.

Mr. Douglas said he quite agreed that a hospital should be erected in the Windward. He pointed out the case of a man who left Delaford, ill, and with intention of gaining admission into the Scarborough Hospital for medical aid, and died as soon as he reached there before he had an opportunity of receiving any help from the Institution.

The Chairman said that in his opinion Mr. Murray had laid his finger on the main point. On the point in question there was a great deal of inconvenience, but he did not think that the Government was going to build a hospital in the Windward at present. He further said that the Surgeon General visited Tobago recently and in his report, the Surgeon-General had said "that Tobago has as many doctors as they ought to have," and if we are to ask for a hospital it would mean increasing the Medical strength in Tobago, and that he thought would hardly happen; and further that the Government was centralising all its efforts at present.

Mr. Murray said that he was in favour of seeing both ambulance and hospital, but we were more likely to get ambulances.

Mr. McTear said that very often the one hospital was crowded and people could not gain admission.

Chairman: That is so.

The meeting then agreed to pass the following resolution to send to the Parent Society to be sent to the Government after due consideration:—

"That this Society is convinced that the time has come when hospital aid should be made more accessible to the people of the Windward District, Tobago.

Charlotte Ville, for instance, is a large and growing district. Under present condition of a patient resident in Charlotte Ville required immediate hospital aid, he would have to be conveyed 27½ miles in order that he might reach Scarborough. In the rainy season his journey might be considerably delayed by landslips and other

obstructions in the road: and, as recently happened in the case of a patient from Deloford, he might die on the way. The same thing is true, only in a lesser degree, of patients from Districts not so remote as Charlotte Ville. And in addition to the length of time expended, there is cost of travelling, which is well nigh prohibitive.

The Society views this situation with grave concern: and respectfully asks the Government, through the Parent Society, whether in view of the fact that the population of the Windward District is steadily increasing, it might not be possible to establish a hospital in the Windward District, or if such a scheme be considered too expensive, at least to provide motor-transport for patients, so that they might be got to hospital a little more expeditiously and a little less expensively."

There being no other business, the Roll was taken and the National Anthem sung and the meeting terminated

NAPARIMA.

The regular meeting of the Naparima District Agricultural Society, was held at the Town Hall, on Monday 18th June when there were present : Mr. J. C. Augustus, Vice-Chairman, W. W. Bonyun (Treas.) Rev. Cannon W. S. Doorly, Rev. C. G. Errey, R. M. Scott, J. Mungal, A. H. Dasent, H. Stent, B. Reynolds, F. Maughn, E. Douglin A. Ogeerally, Dr. Dottin, D. Chadee, A. A. Sobrian, (Delegate) H. Gobin, T. Boodansingh (Agr. Adviser), H. Gordon and A. E. Lakhon (Hon. Sec.).

Minutes :—The minutes of the last meeting were read and confirmed.

Delegate's Report :—Mr. A. A. Sobrian said he attended the last meeting of the Parent Society, Mr. Wm. Nowell, Asst. Director of Agriculture read a paper on "The Disposal of Black Pods on Plantations" Mr. Ramcoomarsingh received the Society's Diploma for having won the prize for three years in succession for the best kept garden.

Agricultural Bank :—Mr. Mungal raised the question of the utility of the Agricultural Bank which was being proposed by certain members of the Planting community. The matter was freely discussed.

Agricultural Adviser's Report :—Mr. T. Boodoosingh said that the peasants were making good use of the present favourable weather conditions in preparing their lands. Canes were all reaped and the Cocoa picking had come to an end. He thought that the time was now opportune for proprietors to turn their attention to the eradication of disease and the control of pests.

Lecture :—Dr. W. Dottin, V.S. then delivered an instructing and interesting lecture on Farcy and Glanders in Animals.

A few questions were put to the lecturer and in replying cleared up the points that were raised by the members. The Chairman thanked the lecturer and the meeting came to a close.

FYZABAD.

The regular monthly meeting of the Fyzabad District Agricultural Society was held at the Fyzabad C.M.I. School house on the 2nd October, 1923 at 4.30 p.m.

Present were :—Messrs. N. P. Gour, Vice-Chairman in the Chair, Nathaniel Goberdhan, C. Goberdhan, Gangabissoon Maraj, C. Seulal, Ghagraty, J. Kokeran, F. Bhola, Hadai, K. Benjamin, Ali Mohamed, John Budhu, Mungal, S. M. Harnarayan, Hon. Secretary and nine visitors.

The minutes of the previous meeting were read and confirmed.

Agricultural Bank :—A discussion on the Agricultural Bank again arose, Mr. Harnarayan said, that he read with interest the various arguments brought forward in various papers and individuals and it seems that the capitalist are trying all in their power to prevent the

formation of this valuable institution and this society has not up to the present taken up the matter which concerns it so much. After much debate on the matter it was unanimously agreed that we should co-operate with the Agricultural Society. Mr. N. Goberdhan then moved that this society forward a resolution to that effect, which was unanimously agreed upon, and that the Parent Society be also informed that should any further question arise, we shall be prepared to forward our delegate.

Election of Candidates :—Mr. Balkaran was duly elected a member of this Society.

Poultry Journal :—Mr. Gangabissoon moved that this Society subscribe for one of the poultry journals, seconded by Mr. Goberdhan and unanimously carried. The matter was entrusted to the Secretary to select and subscribe for a suitable journal for one year.

Field Demonstration :—It was decided that a field demonstration be held at the property of Mr. S. M. Harnarayan on the 10th inst at 4 p.m.

There being no further business the meeting terminated.

A Field Demonstration was held under the auspices of the Fyzabad District Agricultural Society at the property of Mr. S. M. Harnarayan on the 10th October, 1923, at 4 p.m.

There were present the following Members, Pupils of 4 schools of the Fyzabad C. M. I. :—Messrs. C. Goberdhan, K. Benjamin, S. Mohamed, A. Mohamed, N. Goberdhan, N. Sampath, P. Seeboo, F. Bhola, Kaloo, Jai Mungul, C. Seulal, O. Sumesar, J. Kokeran, Dubary, J. Briglal, C. Bissoon, Pithe Ramlal, B. Bissoon, Ramcharitar, S. Chatoor, J. Providence, C. Dookharan, Leo Sampath, H. Seulal, Ramroop, Santokhie, Manshadally, Choon, Kaloo, Gangabissoon Maraj Bhagraty Maraj, T. Bissoon, and S. M. Harnarayan, demonstrator.

(SOCIETY PAPER No. 802),

MONTHLY SHIPMENTS AND OPENING AND CLOSING LONDON MARKET PRICES FROM JANUARY, 1909 TO 30TH SEPTEMBER, 1923.

TRINIDAD CACAO

Compiled and Printed by Edgar Tipton & Co.

[illegible]

They were taken around and shown the budding of Chapons, the actual bud taken from a healthy and heavy bearing tree and inserted on a Chapon of a poor bearer, so as to convert a bad bearing tree into a good one. Various size of buds were then shown from newly sprouted down to bearing ones and the manner of trimming the bad tree to allow room and light for the developing bud.

They were taken to another field and Rosalina root cocoa nurseries which could not be successfully and economically done in the ordinary way. Mr. Ali Mohamed criticised the method, which called forth further explanation and proof, large quantities of sprouted plants were then shown in another field, which satisfied him and all the members present, they then unanimously agreed that the method was an improved and inexpensive way of supplying large cocoa nurseries.

They were taken to another field and Rosalino root disease was shown. The mycelium in the diseased patch was cut and exhibited and the symptoms explained so that a mistake could not be made with trees killed by stem and other diseases. The method of controlling the disease was also explained.

They were next shown how with a small navel orange plant in a bamboo pot bought from the experiment station, the demonstration by inarching had converted a set of common orange trees and small plants into navel which were making rapid progress.

At the conclusion and during the demonstration a number of questions were asked which were suitably replied to. The demonstration being over Mr. Nathaniel Goberdhan said he felt it his duty on behalf of the Society to move a vote of thanks to Mr. Hanarayan for the able manner in which he had explained everything supplying much food for thought and that everyone will be leaving much benefited, this was supported by Mr. K. Benjamin and others. Mr. Hanarayan suitably replied and the meeting terminated.

PLOUGHS FOR RICE LANDS.

WE have ordered, to arrive in February, a number of small Ploughs suitable for use on Rice Lands where often only one animal is available.

The Ploughs are International and therefore need no recommendation as to their worth.

As a great many of them have already been booked we would ask those who will be wanting any for the coming Planting Season to get into touch with us at once.

5—7 INCH SIZES.

Repair Parts Always in Stock.

T. GEDDES GRANT, LIMITED.

TRINIDAD MONTHLY PRODUCE REPORT AND STATISTICS.

COMPILED BY EDGAR TRIPP & Co.

Port-of-Spain, 30th September, 1923.

CACAO.—There was a very good demand from America during the month, at improved prices, which caused this market to respond immediately. "Plantation" and "Middling Red" qualities were eagerly purchased at \$9.50 to \$9.75, and \$8.50 to \$8.70 respectively. The market closed rather weak however, with a downward tendency.

Venezuelan cacao is exceedingly scarce, and the few small lots which have been landed, were sold at \$9.25 to \$9.50 according to quality.

SUGAR.—We are pleased to present with this issue our usual annual record of the Sugar Crop together with the Cane Farming Returns.

It will be noted from the figures furnished below that 5,699,679 lbs. were exported during the past month. This about completes the total crop available for export, a fact which is very regrettable in view of the general improvement in prices both in the U.K. and U.S.A.

The reserve for local consumption is being sold at 8½ and 7 cents for Yellows and No. 3 Grocery respectively.

MOLASSES.—There is nothing to report with regard to this product, no shipments having been made during the month.

COCONUTS.—There has been considerable activity in the local market recently brought about chiefly through greater demand from abroad. Sales have been

reported at \$22.50 for Selects and \$13.00 for Culls, but it is feared that this improvement is only temporary.

COPRA.—In consequence of the great demand for Coconuts this product has been reported as scarce, and the small lots offering have been sold at around \$4.80 per 100 lbs.

ASPHALT AND OIL.—There is nothing to add to our last report.

CACAO.

Shipments of Trinidad Cacao During the Month of September, 1923.

Destination.			Weight in lbs.
To all countries	..	..	1,607,245 ..
Shipped previously	..	..	60,095,687 ..
Total from 1st January			61,702,932 ..
To same date 1922			41,674,531 ..
..	..	..	66,753,816 ..
..	..	..	60,969,792 ..
..	..	..	56,591,767 ..
..	..	..	49,459,565 ..
..	..	..	66,298,332 ..
..	..	..	49,718,564 ..
..	..	..	43,884,913 ..
..	..	..	59,870,569 ..
..	..	..	44,915,936 ..
..	..	..	39,063,198 ..
..	..	..	41,523,274 ..
..	..	..	47,555,713 ..
..	..	..	40,801,845 ..
..	..	..	35,471,115 ..
..	..	..	31,308,624 ..

London Quotations for Ordinary:—

1st September per cwt.	...	47/—48/—
30th " " "	—	47/—48/—
At same date 1922	.. ..	69/— 67/—
" " 1921	.. ..	56/— 58/—
" " 1920	.. ..	92/— 80/—
" " 1919	.. ..	125/—127/—
" " 1918	.. ..	90/—
" " 1917	.. ..	85/— 89/—
" " 1916	.. ..	82/— 83/—
" " 1915	.. ..	81/— 84/—
" " 1914	.. ..	60/—
" " 1913	.. ..	71/—
" " 1912	.. ..	72/—
" " 1911	.. ..	62/— 61/—
" " 1910	.. ..	54/6
" " 1909	.. ..	55/— 54/6

New York Quotations :—

1st September per lb.	..	8 $\frac{7}{8}$ c.
8th " " "	..	8 $\frac{1}{2}$ c.
14th " " "	..	8 $\frac{3}{4}$ c.
20th " " "	..	8 $\frac{1}{2}$ c.
27th " " "	..	9c.
30th " " "	..	9c.
At same date 1922	.. ..	11 $\frac{1}{2}$ c.
" " 1921	.. ..	8c. —9 $\frac{3}{4}$ c.
" " 1920	.. ..	15c.
" " 1919	.. ..	25 $\frac{3}{4}$ c—24 $\frac{3}{4}$ c.
" " 1918	.. ..	13 $\frac{3}{8}$ —13 $\frac{1}{2}$ c.
" " 1917	.. ..	12 —13 $\frac{3}{4}$ c.

Foreign Cacao Shipped for the Quarter Ending
30th September, 1923.

To all Countries	1,869,504 lbs.
Shipped previously	5,297,092 ..
Total from 1st January	7,166,596 ..
To same date 1922	5,188,028 ..
„ „ 1921	7,383,731 ..
„ „ 1920	6,543,482 ..
„ „ 1919	7,648,325 ..

SUGAR.

Shipped for the Month of September, 1923.

To all countries	5,699,679 ..
Shipped previously	71,480,158 ..
Total from 1st January	77,179,837 ..
To same date 1922	110,971,532 ..
„ „ 1921	103,614,852 ..
„ „ 1920	105,034,940 ..
„ „ 1919	83,284,150 ..
„ „ 1918	77,754,880 ..

London Quotations for Demerara Crystals:—

1st September per cwt.	54/—59/—
20th „ „ „	56/—61/—
30th „ „ „	56/—61/—
At same date 1922	41/—44/—
„ „ 1921	51/—46/—
„ „ 1920	129/—
„ „ 1919	57/9 —91/—
„ „ 1918	57/9
„ „ 1917	46/9

At same date	1916	..	..	40/1½—43/1½
"	"	1915	..	25/- —28/6
"	"	1914	..	26/- —39/-
"	"	1913	..	14/- —14/9
"	"	1912	..	16/3 —17/3
"	"	1911	..	18/- —20/9
"	"	1910	..	18/9 —17/-
"	"	1909	..	14/9 —15/6

New York Quotations, Crystals:—

1st September per 100 lbs.	..	5.81
4th	" " " "	6.28
20th	" " " "	6.72
21st	" " " "	6.78
29th	" " " "	7.65
30th	" " " "	7.65

At same date	1922	..	..	5.24— 4.96
"	"	1921	..	4.61— 4.25
"	"	1920	..	12.04—10.03
"	"	1919	..	7.28.
"	"	1918	..	7.28.
"	"	1917	..	7.40— 6.90

MOLASSES.

Shipped for the Month of September, 1923.

To all countries	Nil.
Shipped previously	89,091 gals.

Total from 1st January	89,091 „
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To same date	1922	113,601 „
"	"	1921	..	57,471 „
"	"	1920	..	434,228 „
"	"	1919	..	258,166 „
"	"	1918	..	590,952 „

RUM.

Shipped for the Month of September, 1923.

To all countries	Nil.
Shipped previously	23,072 ..

Total from 1st January	23,072 ..
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At same date 1922	22,942 ..
" " 1921	161,646 ..
" " 1920	43,957 ..
" " 1919	134,634 ..
" " 1918	123,142 ..

COCONUTS.

Shipped for the Month of September, 1923.

To all countries	875,325 nuts.
Shipped previously	7,848,865 ..

Total from 1st January	8,724,190 ..
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To same date 1922	13,744,736 ..
" " 1921	14,643,436 ..
" " 1920	18,163,359 ..
" " 1919	23,355,855 ..
" " 1918	15,359,865 ..
" " 1917	..	..	9,969,072 ..
" " 1916	..	..	11,495,835 ..
" " 1915	..	..	9,190,955 ..
" " 1914	..	..	12,065,287 ..
" " 1913	..	..	10,511,157 ..
" " 1912	..	..	11,318,600 ..

Foreign Coconuts Shipped for the Quarter Ending
30th September, 1923.

To all Countries	..	..	Nil.
Shipped previously	..	..	2,247 „
			<hr/>
Total from 1st January	..	..	2,247 „
To same date 1922	..	..	14,875 „
„ „ 1921	..	..	1,111,960 „
„ „ 1920	..	..	1,109,555 „
„ „ 1919	..	..	1,553,438 „

COPRA.

Shipped for the Month of September, 1923.

To all countries	..	..	922,390 lbs.
Shipped previously	..	..	8,517,665 „
			<hr/>
Total from 1st January	..	..	9,440,055 „
To same date 1922	..	..	6,518,043 „
„ „ 1921	..	..	3,827,703 „
„ „ 1920	..	..	1,250,910 „
„ „ 1919	..	..	1,605,522 „
„ „ 1918	..	..	4,130,806 „
„ „ 1917	..	..	4,841,844 „
„ „ 1916	..	..	2,283,582 „
„ „ 1915	..	..	2,951,001 „
„ „ 1914	..	..	1,334,811 „
„ „ 1913	..	..	975,266 „
„ „ 1912	..	..	2,669,492 „

ASPHALT.

Shipped for the Month of September, 1923.

To all countries	..	..	13,139 tons.
Shipped previously	..	..	119,221 „
			<hr/>
Total from 1st January	..	..	132,360 „

To same date 1922	..	..	108,651	„
„ „ 1921	..	..	78,698	„
„ „ 1920	..	..	78,194	„
„ „ 1919	..	..	50,089	„
„ „ 1918	..	..	44,054	„
„ „ 1917	..	..	74,893	„

OIL.

Shipped for the Month of September, 1923.

To all Countries	..	..	6,918,567	gals.
Shipped previously	..	..	62,072,500	„

Total from 1st January	..	..	68,991,067	„
To same date 1922	..	..	33,291,385	„
„ „ 1921	..	..	28,648,180	„
„ „ 1920	..	..	28,340,056	„
„ „ 1919	..	..	38,046,307	„
„ „ 1918	..	..	30,691,939	„
„ „ 1917	..	..	34,232,214	„

Port-of-Spain, 31st October, 1923.

CACAO.—Since our last report values here have declined considerably, due no doubt to advices received from New York that prices are much lower there. To-day's values are \$8.65 for "Plantation" and \$7.60 for "Middling Red", but the market is weak, owing to very limited demand.

Reports from Venezuela state that the approaching crop will be a good one. Recent arrivals of this quality have been sold at \$9.25.

SUGAR.—As usual at this time of the year there is nothing of much importance to report, total exports for the past month only totalling 1,252,606 lbs.

The reserve for local consumption is being sold at 8½ and 6½ cents for Yellows and No. 3 Grocery respectively.

As reported previously, the canes are doing well and there is every likelihood of a good crop next year.

MOLASSES.—Recent shipments have been made to the United Kingdom and elsewhere, but there are still ample stocks on hand for disposal. It is reported that curing operations have been commenced in some of the factories.

COCONUTS.—There has been a noticeable improvement in the market lately, as much as 1,927,265 nuts having been exported as against 875,325 nuts for the previous month. Local sales were reported at \$22.00 and \$12.00 for Selects and Culls respectively during the earlier part of the month, but towards the end the market weakened generally and the few remaining lots offering were unable to realize more than \$18.00 and \$9.00.

COPRA.—The market opened firm at \$4.80 per 100 lbs., but, in sympathy, no doubt, with the drop in the value of Coconuts, closed at \$4.60 per 100 lbs.

ASPHALT AND OIL.—Large shipments have again been made as will be noticed on reference to the figures furnished below.

CACAO.

Shipments of Trinidad Cacao During the Month of October, 1923.

Destination.		Weight in lbs.
To all countries	.. ..	1,266,105 ..
Shipped previously	.. ..	61,702,932 ..
Total from 1st January	.. ..	62,969,037 ..
To same date 1922	.. ..	44,132,034 ..
" " 1921	.. ..	69,735,672 ..
" " 1920	.. ..	61,866,636 ..
" " 1919	.. ..	57,201,499 ..
" " 1918	.. ..	53,296,973 ..
" " 1917	.. ..	67,890,372 ..

To same date	1916	..	..	50,636,017	„	
„	„	1915	..	..	44,258,053	„
„	„	1914	..	..	60,745,517	„
„	„	1913	..	..	45,780,272	„
„	„	1912	..	..	40,143,025	„
„	„	1911	..	..	42,127,478	„
„	„	1910	..	..	49,332,789	„
„	„	1909	..	..	41,367,387	„
„	„	1908	..	..	37,020,821	„
„	„	1907	..	..	35,052,616	„

London Quotations for Ordinary:—

1st October per cwt.	..	..	47/—	48/—
4th	„	„	46/—	
31st	„	„	46/—	

At same date 1922	..	..	65/—67/—
” ” 1921	..	..	56/—85/—
” ” 1920	..	..	80/—
” ” 1919	..	..	123/—130/—
” ” 1918	..	..	90/—
” ” 1917	..	..	87/—94/—
” ” 1916	..	..	83/—
” ” 1915	..	..	84/—87/—
” ” 1914	..	..	60/—58/—
” ” 1913	..	..	71/—68/—
” ” 1912	..	..	72/—
” ” 1911	..	..	61/—63/6
” ” 1910	..	..	55/—
” ” 1909	..	..	54/6

New York Quotations :—

1st October per lb.	..	..	9c.
5th	„	„	8 ³ / ₄ c.
13th	„	„	8 ¹ / ₂ c.
20th	„	„	8 ³ / ₄ c.
25th	„	„	8 ¹ / ₂ c.
31st	„	„	8 ¹ / ₂ c.

At same date 1922	..	..	11½c.—10¾c.
" " 1921	..	..	9¾c.—10c.
" " 1920	..	..	15c. —13½c.
" " 1919	..	..	24¾c.—24½c.
" " 1918	..	..	13¾c.—14c.
" " 1917	..	..	12½c.—13¾c.
" " 1916	..	..	13c. —24¼c.

SUGAR.

Shipped for the Month of October, 1923.

To all countries	1,252,606 ..
Shipped previously	77,179,837 ..

Total from 1st January	78,432,443 ..
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To same date 1922	112,131,862 ..
" " 1921	104,568,366 ..
" " 1920	105,112,881 ..
" " 1919	84,213,430 ..
" " 1918	..	..	78,345,440 ..

London Quotations for Demerara Crystals :—

1st October per cwt.	..	..	56/—61/—
4th " " "	..	..	60/—65/—
31st " " "	..	..	60/—65/—

At same date 1922	..	..	41/—45/6
" " 1920	..	..	46/—42/—
" " 1920	..	..	129/9
" " 1919	..	..	57/9—91/—
" " 1918	..	..	57/9
" " 1917	..	..	46/9
" " 1916	..	..	40/1½—43/1½
" " 1915	..	..	24/9—30/—
" " 1914	..	..	27/—29/—
" " 1913	..	..	14/—14/9

To same date 1912	..	..	16/3—18/6
" " 1911	..	..	19/9—21/3
" " 1910	..	..	15/6—16/3
" " 1909	..	..	14/9—16/-

New York Quotations, Crystals.—

1st October per 100 lbs.	..	7.78
11th " " " "	..	7.66
31st " " " "	..	7.66

At same date 1922	..	..	5.02—5.53
" " 1921	..	..	4.25—4.06
" " 1920	..	..	9.00—8.25
" " 1919	..	..	7.28
" " 1918	..	..	7.26
" " 1917	..	..	6.90
" " 1916	..	..	3.75—26

MOLASSES.

Shipped for the Month of October, 1923.

To all countries	16,358 gals.
Shipped previously	89,091 ..

Total from 1st January	105,449 ..
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To same date 1922	135,989 ..
" " 1921	60,729 ..
" " 1920	491,677 ..
" " 1919	291,088 ..
" " 1918	628,947 ..

RUM.

Shipped for the Month of October, 1923.

To all countries	Nil
Shipped previously	23,702 ..

Total from 1st January	23,702 ..
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At same date 1922	20,965	„
„ „ 1921	161,650	„
„ „ 1920	46,265	„
„ „ 1919	158,706	„
„ „ 1918	142,095	„

COCONUTS.

Shipped for the Month of October, 1923.

To all countries	1,927,265	nuts
Shipped previously	8,724,190	„

Total from 1st January	10,651,455	„
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To same date 1922	15,695,651	„
„ „ 1921	16,792,706	„
„ „ 1920	19,445,154	„
„ „ 1919	25,018,424	„
„ „ 1918	18,003,900	„
„ „ 1917	..	..	12,555,752	„
„ „ 1916	..	..	13,333,904	„
„ „ 1915	..	..	10,910,659	„
„ „ 1914	..	..	12,920,097	„
„ „ 1913	..	..	12,140,122	„
„ „ 1912	..	..	13,753,693	„

COPRA.

Shipped for the Month of October, 1923.

To all countries	963,550	lbs.
Shipped previously	9,440,055	„

Total from 1st January	10,403,605	„
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To same date 1922	7,302,956	„
„ „ 1921	4,163,103	„
„ „ 1920	1,686,310	„
„ „ 1919	1,605,522	„
„ „ 1918	4,504,106	„

„	„	1917	..	..	6,194,138 „
„	„	1916	..	..	2,405,582 „
„	„	1915	..	..	3,194,701 „
„	„	1914	..	..	1,776,089 „
„	„	1913	..	..	1,080,886 „
„	„	1912	..	..	2,773,703 „

ASPHALT.

Shipped for the Month of October, 1923.

To all countries	..	..	17,512 tons
Shipped previously	..	..	132,360 „
Total from 1st January	..	..	149,872 „
To same date 1922	..	..	123,404 „
„	„	1921	83,598 „
„	„	1920	93,099 „
„	„	1919	55,380 „
„	„	1918	53,854 „
„	„	1917	27,746 „

OIL.

Shipped for the Month of October, 1923.

To all countries	..	..	4,109,494 gals.
Shipped previously	..	..	68,991,067 „
Total from 1st January	..	..	73,100,561 „
To same date 1922	..	..	41,509,954 „
„	„	1921	32,532,496 „
„	„	1921	29,967,205 „
„	„	1919	40,101,324 „
„	„	1918	33,045,641 „
„	„	1917	27,512,572 „

Rainfall for September, 1923.

Day of Month.	LEWISVILLE, SAN FERNANDO.		EL RECUERDO, MANZANILLA.		ERIN.		KING'S BAY TOBAGO.	
	Inches	Parts.	Inches	Parts.	Inches	Parts.	Inches	Parts.
1	...	13	...	...	...	62	...	15
2	...	92	...	...	...	...	...	...
3	...	03	...	...	...	16	...	17
4	...	75	...	36	...	08	...	84
5	1	03	...	37	1	20	1	28
6	...	15	1	88	...	...	1	99
7	77	...	...	...	...
8	19
9	...	10	...	07	...	...	...	...
10	05	...	...	1	24
11	32
12
13	...	20	...	44	...	...	...	05
14	...	32	...	12	...	18	...	55
15	...	09	...	08	...	...	...	02
16	...	76	1	05	1	10	...	35
17	...	02	...	20	...	...	...	06
18	...	26	...	52	...	...	...	...
19
20	...	09	...	...	...	...	...	...
21	...	05	...	20	...	68	...	10
22	1	25	...	53	...	97	1	21
23	26	...	08	...	06
24	...	03	...	37	...	05	...	39
25	...	83	...	66	...	...	...	05
26	15
27	30	...	...
28	...	03	...	...	...	...	...	...
29	...	17	...	...	...	...	...	01
30	29
31
TOTAL.	6	76	7	93	5	42	9	47

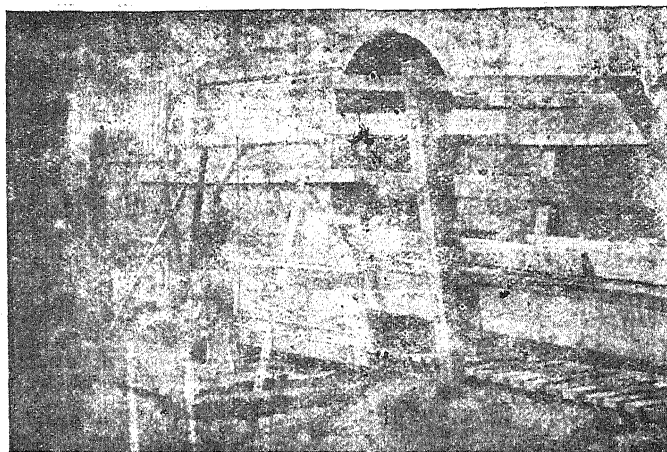
Note—August,	1922	...	...	...	6	.50
31	1921	...	...	...	8	.84
31	1920	...	...	...	9	.25
31	1919	...	...	...	3	.80
31	1918	...	...	...	5	.18
31	1917	...	...	...	6	.98
31	1916	...	...	...	7	.60
31	1915	...	...	...	5	.07
31	1914	...	...	...	7	.64
31	1913	...	...	...	8	.64
31	1912	...	...	...	7	.88

Years—Total	1922	(at Lewisville)	...	81
31	1921	...	...	78
31	1920	...	...	...
31	1919	...	...	...
31	1918	...	...	...
31	1917	...	...	...
31	1916	...	...	...
31	1915	...	...	...

Rainfall for October, 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		ERIN		KING'S BAY TOBAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1	...	...	...	...	...	...	...	...
2	...	03	...	...	...	18	...	...
3	...	02	...	07	...	...	...	02
4	...	68	...	30	...	...	1	08
5	...	93	...	60	1	95	...	56
6	...	25	...	53	...	30	...	...
7	...	35	...	46	...	50	...	48
8	...	...	1	88	...	48	1	12
9	...	...	1	90	...	...	...	...
10	...	...	...	...	...	...	...	16
11	...	...	...	07	...	...	...	02
12	...	08	...	...	...	...	...	01
13	...	76	..	60	...	62	...	22
14	...	05	..	87	...	19	...	11
15	...	..	..	30	..	...	...	15
16	...	...	...	43	...	...	...	...
17	...	...	..	...	...	...	...	...
18	...	...	...	...	...	...	...	...
19	...	17	...	...	...	...	...	...
20	...	35	...	...	...	50	...	...
21	...	...	...	...	...	...	...	...
22	...	...	...	...	...	...	...	...
23	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...	...
		65	...	16	...	...	...	...
		08	...	70	...	22	...	05
		...	...	15	...	...	...	08
		68	...	...	...	10	...	53
		...	...	39	...	...	...	06
<hr/>								
	03	8	82	5	04	4	58	
<hr/>								
ber,		1922	..	..	..	7	.77	
		1921	..	..	..	10	.74	
		1920	..	..	..	7	.11	
		1919	..	..	..	5	.50	
		1918	..	..	..	10	.28	
		1917	..	..	..	4	.16	
		1916	..	..	..	5	.39	
		1915	..	..	..	7	.04	
		1914	..	..	..	8	.48	
		1913	..	..	..	7	.17	
<hr/>								
il		1922	(at Lewisville)	..	81	.16		
		1921	..	..	78	.79		
		1920	..	..	59	.07		
		1919	..	..	60	.19		
		1918	..	..	70	.58		
		1917	..	..	78	.64		
		1916	..	..	89	.41		
		1915	..	..	70	.37		
		1914	..	..	84	.86		
		1913	..	..	84	.86		

A GOOD COMBINATION.



Cooper's

SPRAYING MACHINE

Cooper's

CATTLE DIP.

AGENTS:

T. GEDDES GRANT, LIMITED.

Proceedings of the Agricultural Society

NOVEMBER-DECEMBER, 1923.

EDITOR'S NOTES AND CLIPPINGS.

The Weather and the Crops :—Taken on the whole, the weather conditions during the present year should, we think, be classed as fairly favourable for the staple products of the Colony. The rainfall for the months of November and December as registered in different parts of the Island is about 16½ inches, but the distribution left much to be desired and the Central and Southern districts of the Island were more affected by the drought which intervened during part of October and beginning of November. Since the end of November more rain has fallen generally and at the present time—December—we are getting showers, which if prolonged until January will be very beneficial to the Sugar and Cacao Crops and help to materially improve the backward condition of the Sugar Cane fields.

There is no likelihood that the sugar crop will start before the end of January or beginning of February and it is doubtful if the output next year, will be much greater than was at first anticipated. It is, however, hoped it will not be less than 50,000 tons. If the rate at

which the replanning of new sugar Cane fields is carried out presently continues until January, crop 1925 ought to be a large one.

It is difficult to predict what will be the outcome of the Cacao Crop—it is so dependent on atmospheric influences and local conditions, that it is not possible to arrive at a correct estimate. Very little Cacao has been received from the producing centres and no heavy pickings will take place before February.

The Coconut crop being an almost continuous one, it is safe to say that the production will remain the same as last year.

Estimate of the World Sugar Crops 1923-24 :—According to Messrs. Willett & Gray their latest estimates of the Sugar Crops of the world is for both Cane and Beet Sugar 19,145,500 tons. This indicates a production for 1923-24 of the largest Sugar crop ever made. With the increased consumption, this increase in the Sugar output is needed to meet the World's requirements—the increase over last year's crop is 1,197,972 tons which is accounted for by an addition to the total beet crops of 937,102 tons and to the total Cane Sugar crops of 260,870 tons. The increase in the beet crop is largely in Europe which will produce about 800,000 tons more than last year; this with the United States beet crop increase of approximately 135,000 tons accounts for the total increase of beet sugars.

The unfavourable climatic conditions generally prevailing in Cuba and throughout the West Indies have affected the Cane Sugar crops in these countries and their estimated production is markedly under their last favourable campaign which was in 1921-22 (Louisiana Planter.)

It will interest our readers to know that in 1922 Cane Sugar was obtained from the following countries in the approximate quantities mentioned.

Louisiana and Texas	216,000	Tons
Porto Rico	375,000	"
Hawaian Islands	476,000	"
Virgin Islands	6,000	"
Cuba	4,000,000	"
Trinidad	55,000	"
Barbados	35,000	"
Jamaica	38,000	"
Antigua	12,000	"
St. Kitts	15,000	"
Other Islands	10,000	"
Martinique	10,700	"
Guadeloupe	30,000	"
San Domingo & Haiti	212,000	"
Mexico	120,000	"
Central America	48,000	"
Demerara	100,900	"
Surinam	11,000	"
Venezuela	16,000	"
Ecuador	8,000	"
Peru	340,000	"
Argentina	200,000	"
Brazil	425,000	"
British India	2,575,000	"
Java	1,750,000	"
Formosa	405,800	"
Philippine Isles	285,000	"
Egypt	90,000	"
Mauritius	225,000	"
Reunion	40,000	"
Natal	140,000	"
Mozambique	45,000	"
Spain	6,000	"
Australia	300,000	"
Fiji Islands	52,000	"

12,680,400

Beet Sugar: Germany	1,400,000	Tons
Poland	270,000	"
Czecho-Slovakia	750,000	"
Austria & Hungary	94,500	"
France	560,000	"
Belgium	300,000	"
Holland	285,000	"
Russia & Ukraine	220,000	"
Other Countries	656,000	"
United States	750,000	"
	<hr/>	
	5,285,500	
	<hr/>	

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DESCRIPTIVE LECTURE ON FUNGI.

By F. STELL, MYCOLOGIST OF THE DEPARTMENT OF AGRICULTURE.

WHAT IS A FUNGUS?

It must sound like an impertinence to ask a Trinidad audience the question: What is a fungus? because I suppose Trinidadians would say fungi are wretched, nasty things which destroy roses, cannas, orchids, lilies, and other plants in gardens. Also that they injure Estate crops such as cacao and sugar-cane; and sometimes mangoes, bananas, and many other fruits and vegetables are rendered inedible by fungi. In other words, you will tell me that fungi disfigure gardens; that they are sometimes responsible for limiting the pocket money of children; that they produce ruffled tempers; that they reduce dividends; and sometimes they even play a part in curtailing or prohibiting holidays.

All this may be very true, but it is not answering the question; it is only describing the effect of fungus attacks.

Now the point of chief importance is to remember that a fungus is a "plant," and as such it has certain fairly definite characteristics. There are peculiarities of structure and function which are characteristic of the group. A fungus has a life cycle like any other plant and the spores which represent the reproductive bodies are comparable to the seeds of ordinary garden plants, and are just as capable of giving rise to a new fungus plant as are any of the seeds in ordinary use of producing the various flowering and other plants.

Well, then, a fungus is composed of a cell or a number of cells, and these are microscopic bodies. The cells are surrounded by their walls and the contents of the cells are variable but protoplasm is present and sometime several other contents. Now, the structure of fungi also show considerable range of variation. There is a gradation of complexity ranging from the simple globular cells which are represented by Yeasts which must be more or less familiar to all.

Then there are large numbers of fungi having a filamentous structure. These also must be familiar to you. One sees them commonly in the shape of moulds on bread, fruit, jams, old boots, &c. A third group of higher complexity are the fungi known as toad-stools, mushrooms and the bracket fungi. These are, in a way, known by everybody, though probably few people realize their true significance. I said just now that a fungus had a life-cycle which means that it has a vegetative and reproductive phase. Just as in a common flowering plant we speak of roots and shoots and leaves as constituting the vegetative part of the plant, so in fungi, the threads or filaments, which often have a cobwebby appearance, constitute the vegetative part of the fungus. These thread-like growths must be all too familiar to you; they are often quite a nuisance. Sometimes these filaments or hyphae, as they are called, remain on the surface of living or non-living material. In other cases they penetrate tissues and

destroy them. Thus we see that no matter whether the fungus remains superficial in position or whether it invades tissues, it is composed of these thread-like growths. These collectively form the vegetative part of the fungus and are called the mycelium.

The threads, or hyphae, as we call them, have many variations. There is a type known as thread-blight. Here the strands of hyphae are more or less aggregated and are disposed on the aerial portion of the plant. They form a kind of superficial network in their finer ramifications, and in some instances do damage by inducing suffocation of the host tissues. Another type of hyphae form what are known as Rhizomorphs, that is, root-like growths. These are cord-like in structure, very strong, and are commonly found infesting the roots, and between the bark and wood of forest trees.

Yet another kind of these modified filaments is represented by bodies known as Sclerotia. These are aggregations of mycelia and usually take the form of small, hard spheres. One often finds them on legumes and other crops. They form resting bodies, become scattered in the soil and thus constitute a method of vegetative reproduction.

HOW DOES A FUNGUS FEED ?

You know that a geranium or a mango has its roots and shoots and leaves and that these function to feed the plant; collectively they form the vegetative part of the plant. And so with fungi. These simple, and yet in a way, complex filaments, function as the feeding apparatus.

Usually, the filaments are more or less colourless. Sometimes the fructifications of fungi are variously coloured and easily attract the eye. Such colours are due to various pigments and really take no definite part in feeding.

What must strike one is the absence of green colouring matter in fungi. This leaf-green or chlorophyll as it is called, which is so characteristic of garden plants and trees, is absent in fungi. Now the green colouring matter of ordinary plants in association with sunlight builds up the plants by supplying them with the necessary carbonaceous food out of the carbon-dioxide of the air. Fungi cannot do this. Hence other plants and animals have to feed them.

Taking one of the spores of a fungus, we notice that suitable conditions of heat and moisture are necessary for germination just as is the case with seeds. When conditions are right, then the spore gives rise to a germ-tube. Soon after this the young germ-tube, or tubes begin to feed for themselves.

Only dissolved food can be absorbed. Solids cannot pass through the membrane which form the cell-wall of the filament.

Mineral food is necessary to a small extent and this is usually obtained from the soil or from rotting animal or vegetable matter; in other instances from the juices of living tissues.

There is a rough classification of fungi into Saprophytes and Parasites. The former procure their organic food from dead parts of plants or animals. Large numbers of saprophytes are found in soils and in and on decaying vegetable matter in all kinds of places. Now, these saprophytes play an important part in the economy of nature. They act as scavengers, helping, along with bacteria, to disintegrate the cell-wall and cell contents of plant debris, and thus liberating carbon-dioxide which then becomes available in the atmosphere for green plants. Other gases are also formed, such as hydrogen, which later forms water. So that one has to look at the whole scheme of things and realize that in nature there is a sort of cycle, of balance, where everything is dependent and interdependent. There are building up

processes and breaking down processes and one seems to be dependent on the other.

Of the parasites in the realm of fungi which all dread and which require constant vigilance and ingenuity to reduce their depredations to a minimum, we know that they obtain their food from living tissues of animals and plants. Most of these parasitic fungi are harmful in the economy of nature. There are exceptions. Thus there is a group of them which feed on scale insects and do excellent work in controlling scale insect attacks on many economic crops.

Now, a parasitic fungus is very similar to any other fungus in its mode of life. Infection may be brought about by soil contact; through the roots of contiguous plants; or by direct attack on tissues. It is the same process as obtains in saprophytes. We have the spores. These produce germ-tubes (hyphae). Later, these tubes attack the cuticle and cell walls. In many instances, entrance of the fungus is gained through wounds in the host plant, caused by various agencies; or again the parasite begins its invasion by way of the stomata, that is the breathing organs which are commonly present on leaves. There would appear to be no doubt that parasitic fungi have themselves a poisoning effect on the surface tissues and in this way break down the resistance of the host.

Of the thousands of different species of fungi which are known, there are exhibited a variety of spore forms for effecting reproduction. In all cases, however, reproduction is secured by the cutting off of specialised cells from hyphae which are fertile. When mature, these spores separate from the mother plant, and on germination give rise to new individuals.

The spores themselves show a wonderful variety of form and size and colour, and structure, and make most interesting studies for the microscope. It sometimes happens that one fungus has several different kinds of spores in its life-history, and these sport-forms have their

existence on different host-plants. But in many cases the fungus lives its life on a single host plant; this applies especially to certain parasitic forms. Most fungi pass unnoticed. This is probably because of their microscopic size. It is only when we come to the higher forms that people begin to observe. And it is usually by the fructifications of the higher fungi which attract notice; in fact, it is probably correct to say that the average person considers the fructification to represent the whole fungus. This is to ignore the vegetative part which we have just discussed. Now, the function of reproduction cannot, in the main, be carried on unless the reproductive bodies have access to the air. And thus it comes about that in the higher fungi particularly, we get various and various structures, representing the fructifications or sporophores as they are called. In one group we get gills on the surface of which the spores are produced. In other groups the spores are borne on the surface of tubes; in yet another group spines form the base on which the spores develop. And in other groups of fungi there are various structures forming convolutions, channels, &c., which function as spore-surfaces. Now the fungus having produced its spores, the question of the dispersal of them arises. There are various agencies at work to effect dispersal. The chief ones are wind and air currents. As you can imagine, the spores are exceedingly light and thus it is possible that many of them travel long distances. Other agents of dispersal are birds and insects. Birds carry debris containing spores on their beaks and feet; insects, through the medium of mandibles, wings, and feet, are known oftentimes to transport spores of various kinds of fungi. Man also plays a part in the dissemination process; particularly labourers on estates who readily carry spores about on their feet and clothing and on agricultural implements. And another effective agent in this connection is rain. There can be no doubt that rain, especially when accompanied by winds is very effective in transporting spores from plant to plant. But,

of course in the multiplicity of spores most of them fail to find suitable anchorage and perish.

I do not know how fond you are of figures and statistics generally, but when one comes to actual calculation of numbers of spores in the fungus world, then one gets something to think about. I referred just now to fungi which produce gills. Professor Buller has made a number of actual counts of spores in various kinds of fungi. In *Coprinus comatus* the number of gills was 214. Each gill had a spore-bearing surface of 1,800 m.m. This means that each gill produced about 24,480,000 spores; and thus the number of spores for the whole fruit-body amounted to the enormous total of 5,240,000,000. As I said earlier, all these spores are highly microscopic and yet if the spores in this fungus were placed end to end, they would stretch a distance of upwards of 40 miles, that is from Port-of-Spain to San Fernando! Seeing that this is a meeting of the Horticultural Club, I might add a final word about fungi which live in association with other plants. Many cases are known where both the fungus and the other plant live a co-operate life, and both appear to benefit; indeed each is indispensable to the other. Examples of this are to be found in the lichens which infest the trunks of trees, stone-walls, and the like. These lichens are really dual organisms. They are composed of a fungus and an alga which live in association—in a state of symbiosis as it is called. What actually occurs is that the fungus threads grow between and around the cells composing the alga and feed on the organic food which the green alga is constantly building up out of the carbon-dioxide of the air. As a sort of compensation for this food, the fungus appears to supply water, mineral food and possibly other substances.

And there are many instances of somewhat similar association. One of the most interesting is that of

orchids. Here the roots are invaded by a fungus (probably a *Rhizoctonia*) and constitute what are known as fungus-roots or "Mycorrhizas."

It is not quite clear what the actual association is, but probably what happens is that the fungus feeds to some extent on the starch stored in the roots. In return, the fungus is probably an agent in assisting the roots to obtain water.

Moreover, this phenomenon is so striking in orchids that the seed is unable to germinate when the fungus is absent.

Altogether the fungi are often unduly maligned. We are apt to give prominence to those which are destructive and to pay too little attention to a balanced study of the whole group.

If this were done, and done increasingly, we should see that the study has much to commend it.

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MEMO. FROM THE CONSERVATOR OF FORESTS.

The enclosed memorandum is self explanatory: its circulation has been authorised by His Excellency the Governor and I hope that you will be able to bring it to the notice of your members at your next meeting.

Such additional information as is available on the subject in question may be obtained from the Forest Department by those interested therein.

R. C. MARSHALL,

Conservator of Forests.

TIMBER FOR EXPORT.

Trinidad and Tobago though a small colony has approximately 1,000 square miles of forests. It at present imports softwoods but has an exportable surplus of hardwoods for which efforts are being made to find a market.

Mora (*Dimorphandra mora*) is the one tree that occurs gregariously and investigations now in progress show well over 64,000 acres of this species largely in

Mayaro. A 1 acre sample lot yielded 46 trees of this species with girths varying from 3'0" to 12'7" above buttresses; and in addition a few crappo and guatecare 500,000 cubic feet a year of mora could be exported for many years.

Of crappo (*Carapa guianensis*), purpleheart (*Peltogyne pomegranecardia*), guatecare (*Decythis idatimen*) and Olivier (*Chionea obovata*) roughly 50,000 cubic feet a year could be exported—these figures must only be considered an approximation—but an attempt is now being made to obtain more accurate information as to our forest resources.

Samples of these woods have been sent to London in connection with the British Empire Exhibition and the following extracts from a letter received from the firm handling these samples are published for general information.

23rd October, 1923.

".....we should be very pleased to do the
"best we can to bring these timbers to the notice of the
"public.

"A very interesting and important point at once
"arises which is the price at which the timber can be
"produced :—

- (a) in logs.
- (b) in planks and boards and
- (c) in square sawn logs.

all f. o. b. steamer at Trinidad.

"In regard to Crappo, this wood is very well known
"to us and it would have a very fair chance indeed
"when competing with what is now termed Phillippine
"Mahogany and Indian Red Mahogany, the first being
"the product of *Hopea* species and called in the
"Phillippines "Red Laun" and the second being the
"product from the Andamans, the source of which at
"present is not surely known. Of the two, the
"Andamans variety is the better for trade purposes

“ and the average price realised on the market for prime
 “ quality sawn boards and planks at the present moment
 “ ranges from 5d. to 6½d. per ft. super as 1”. Large
 “ quantities of Crappo could be absorbed on this market
 “ if the wood could be shipped in square sawn boards
 “ 6 ft. and up average not less than 12’ and 6” and up
 “ average not less than 9” in width, the wider the
 “ average and the longer the length, the higher the price
 “ that would be realised. We know the wood well and
 “ a market could very rapidly be secured.

“ In reference to mora, this wood is very well
 “ known indeed to the writer and its qualities thoroughly
 “ appreciated. For durable constructional work it has
 “ very few competitors. The only question is, whether
 “ it is possible to produce this timber on a competitive
 “ basis. Today, Jarrah from Australia, is obtained at
 “ round about 5/6 per ft. cube c.i.f. London. We very
 “ much fear that mora would not command a higher
 “ price in view of the Australian competition. No other
 “ timber can be obtained at anything approaching the
 “ price, and the whole question seems to depend upon
 “ whether Western Australia still thinks fit to supply
 “ at these prices.....”

.....“ would recommend that an experimental
 “ shipment of say 50 tons of each of the timbers you are
 “ able to produce is sent over.”

The question of freight is of great importance and

“ In this connection it is only necessary to call your
 “ attention to the fact that freight is being freely offered
 “ from Burma @ £3.10 per 50 ft. cube for string
 “ measurement in the round log, and similar price for
 “ measurement on the square, and freights from India @
 “ £2.10 to £3 per 50 ft. cube.

“ Consideration must be given to this matter of freights
 “ as otherwise the timber could not possibly be put for-
 “ ward on a competitive basis.

“ We shall show on behalf of the Governments of India and Burma special consignments of about 50 to 100 logs of each timber having allotted a space on our Wharves which will be used for the purpose of an auxiliary exhibition at the time of the Exhibition so that interested visitors or others who are desirous of seeing the timbers in bulk will have their attention called to the exhibits at our place, and will have an opportunity of inspecting them.”

There thus appears to be a possibility of obtaining a market for certain of our hardwoods but the question largely turns on freight rates.

In this connection the various shipping lines are being approached with a view to allowing experimental shipments of timber to be carried at the reduced rate (50%) which has been sanctioned for articles for the Exhibition which are not for sale.

The Forest Department is anxious that this opportunity of securing a market for some of our hardwoods should not be missed and wishes to get in touch with firms or private individuals who would consider entering on such a business, the preliminary steps consisting of sending consignments of 50 tons of each of the above or other native woods.

Incidentally a specimen of the Phillippine “Red Laun” may be seen at the Forest Office.

19/12/23.

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CACAO PRODUCERS' CONFERENCE.

At the general meeting of the Society held on the 13th December, 1923, Mr. E. Radcliffe Clarke gave the following “resumé” of what has, so far, been done in connection with the convening of a World Conference of

Cacao Producers in London, about the middle of 1924 at the time when the British Empire Exhibition will be opened. He said :—

I have been asked by the Secretary to prepare and lay before you summary of what has been done to bring about, if possible a meeting of the cocoa producers of the world to discuss the parlous condition of the cocoa industry so as to find means for ameliorating it.

It would not be appropriate at this stage to enter into the causes for such condition, but I will tell you of some of the reasons which impelled me to move in the matter.

After considerable observation and investigation of the movements of cocoa, I came to the conclusion that the ancient doctrine with regard to supply and demand, owing to the changes brought about by the destructive operations of traders, has now been made a fallacy, and that barter is now all in favour of those who handle the product from the time it leaves the producer to the time it gets to the consumer, and to the great injury of the producer; and that it is up to the producers unitedly to find a remedy, if by no other means at least by a proper system of marketing.

When a certain firm of large manufacturers in England many weeks ago wanted 5,000 tons of cocoa, this firm did not supply itself from part of the derelict 40,000 tons said by some to be embarrassing the market, but I am informed made the purchase in Gold Coast for forward delivery—leaving the reported 40,000 tons for the world still to hear of—at a price that would perhaps make the prophetic governor smile; but whatever it was the Accras at once became twenty-six shillings. I suppose you all know that the price of Accras is now made the basis for all cocoas.

I will not enter upon suggestions that would be put to the conference, but I cannot refrain from saying that I have received great encouragement in the thought of

co-operative selling in each country, by the recent determination of the British Cabinet that there should be the closest co-operation between governments and between producers' Organizations in concerting and carrying out any possible action for improving the marketing of agricultural products. The same determination is shown by the United States of America as you have noticed by the President's message in the telegrams of Saturday last.

It is hardly necessary to detail all my efforts since I started putting my project into operation, or to recount the numerous obstacles placed in my way—all of which I have up to the present endeavoured to overcome—but I have here the voluminous correspondence, which, from the private nature of some parts, it would not be becoming to make public, although the whole or any part may be perused by any member wishing to do so. I have communicated with every cocoa producing country known to me, some by letters and others by various printed circulars prepared by me from time to time, stimulating them to thought on the subject and preparing them for an invitation, which I hope will ultimately follow, to take part in such a conference.

There are, however, two letters which I think I ought to lay before you. One is from the Gold Coast Farmers' Association (which has already appeared in the public press and which you have all read) because it shows the readiness of the producers of the Gold Coast to co-operate in the movement owing to the great necessity for it, and the other is my reply to the Secretary of the British Empire Producers' Organization where I endeavour to give good reasons why the conference should not be limited to the producers of the British Empire, as suggested by that Organization.

My first step was to write to the British Empire Producers' Organization setting out what the producer alleges to be his grievance, announcing at the same time

the probability of this Society seeking the aid of that Organization to convene a meeting of the producers. I will read you some passages in this letter.

30, April, 1922.

The Secretary of the B.E.P. Organisation.
London.

Sir,—So far as most people can see—apart from any personal interest that I may have in this particular product—it is admitted that this is one of the most highly nourishing foods that can be taken, and yet a strange fatality seems to attend it. It is put at the door of the British people and should easily be made available to everyone, but unfortunately it has first to be converted into a palatable form by someone who is called the manufacturer. Here the great stumbling block arises between the producer and the consumer.

It is pertinent to remark that combinations of capital for selfish ends, with an entire disregard of the injurious effects on others of the Empire not partners to the particular combination, are destructive to the aims of the movement, and if there be no relaxation in any effort to down the next man in order to rise, we may be only playing See-Saw for the rest of the time and the Empire will be no further advanced.

The public have for a long time had to bear the galling reports in the press of the immense power of the Chocolate Manufacturers, susceptible of abuse. So far as I am aware, they have never said it was a libel. To comfortably house the British workman is a laudable object that no one should disparage, but to sacrifice others for it deprives it of its high merit.

But to continue with the subject of cocoa, the manufacturers have, to all appearance, by the policy of limited output and high prices, not only crippled the producer and threatened him with extinction, but are

depriving the would-be consumers of the Mother Country of a valuable food that they should have. By the exorbitant prices the consumer has to pay for the manufactured article, the manufacturer limits the demand (notwithstanding his efforts at advertising), and he fixes the price of the raw article at whatever he chooses. There is one plain and indisputable fact, and that is that the producer is being ruined. Can the manufacturer say the same thing of himself? It is not that there is really any glut in the market.

Following upon this, this Society on the 10th May, 1923, adopted my motion and sent it on to the British Empire Producers' Organization :—

“ That in view of the disparity between the
 “ prices paid to the producer of raw cocoa and
 “ the prices paid by the consumer of the
 “ manufactured article which naturally restricts
 “ consumption and impedes the demand for the
 “ raw product, the British Empire Producers’
 “ Organisation be asked to circularize the cocoa
 “ producers of the world to join in a movement
 “ for convoking a World Conference in England
 “ on the occasion of the coming Exhibition, to
 “ discuss the parlous position of Cocoa, and to
 “ decide what (if any) united action should be
 “ taken to secure a fair return to the producers,
 “ and that this Society place at the disposal of
 “ the Organisation such sum as may be deemed
 “ sufficient as a contribution towards the
 “ movement.”

The following reply was received.

3rd July, 1923.

Dear Sir,

I enclose herewith a copy of the Minutes of Meeting of Cocoa Section. As you will see, the Meeting was very representative, your three members being

present, Sir Edward representing the other West Indian Cocoa-producing Colonies and Mr. J. H. Batty, who is, as you are aware, the Chairman of the African Eastern Corporation and is in a position to speak on behalf of the West African Cocoa interests.

The Minutes, I think, speak for themselves, but I was instructed to inform you that the matter was discussed very fully and at great length and the Members were unanimous in the decision arrived at. In the Cocoa Section of the Organisation, all the Empire Cocoa producing interests are represented and the Committee felt strongly that there would be no advantage in calling into Conference foreign producers with whom Empire Cocoa Planters would have very little in common.

The Organisation, as a whole, is presenting a reasoned memorandum to the Economic Conference on the whole question of preference, and also in detail on the individual needs of the industries which constitute it, and it was for this reason that the Committee felt that they could best forward the interests of the Cacao industry by taking part in this comprehensive and important movement.

The decision of the Committee has come before the Council and has met with its unanimous approval and we hope that the Agricultural Society of Trinidad and Tobago will approve the attitude adopted.

I am to say on behalf of your own representatives that all of them were entirely in favour of the decisions arrived at.

Perhaps you will favour me with the comments of your Council and also with any point that they wish made in the case that we propose to put before the Economic Conference.

Yours faithfully,

(Signed) HAROLD T. POOLEY,
General Secretary.

Then came my letter to the British Empire Producers' Organisation, the substance of which is "Commercial men as a body have not hitherto given such convincing roof of either altruistic tendencies in their dealings as to lead me to believe that in the case of cocoa patriotism would dominate covetousness. I would therefore take the precaution in the battle not to leave about the field munitions in the shape of Bahias or Guayaquila, that might be picked up and used to our destruction.

Then comes our President's letter to the British Empire Producers' Organisation.
The Secretary,

Of The British Empire Producers' Organization,
London.

My Society while approving of the effort to obtain an increased preference regrets that its instructions as to its principal aim were not more clearly conveyed to its representative Mr. H. Hamel-Smith.

It is obvious that the practice of aloofness observed by the large manufacturers towards the producers, which makes impossible a wholesome understanding between them, is the principal cause of the parlous condition of raw cocoa at the present moment. In the largest consuming centre (The U.S.A.) it is regarded as a serious offence by the agents, the brokers, for a producer to approach a manufacturer. The producers feel that the manufaceurèrs have a great advantage over them by their facilities and opportunities for combining to decide upon one common policy in fixing the prices which the producers are to be compelled to accept for the goods supplied by the sweat of their brow, when distance between the producers and the absence of any common understanding prevents them having any choice in their own concerns.

This is certainly a disquieting sentiment, especially when the manufactured article is being sold to the consumer at over one thousand per cent. above what they get for the raw material. The producers also feel that it would be an act of justice to them, were all in the Empire having it in their power, to help them to get together to discuss the best means of disposing of their goods so that at least a fair recompense be given them for their labour. This Society considered that the Empire Exhibition would be the most suitable occasion for a meeting as many of the producers from all parts are likely to be present in England.

This Society therefore asks for a reconsideration of the decision of your Committee so that the proposed Conference may take first place in their deliberations.

It is of greatest importance that the manufacturers be invited to meet us, as there is no reason for their having other than friendly feelings towards us; and the best and most lasting understanding might be brought about.

By correspondence from the Gold Coast it seems probable that their and our desires are identical.

PRESIDENT.

President

West India Committee.

Sir,

Owing to the parlous condition of cocoa, which threatens to complete its destruction, the time has arrived when a consultation between all concerned should take place in order to find a means if possible of ameliorating such condition and avoiding what would be a disaster to the vast numbers in the Empire whose very existence is dependent on the cocoa industry.

The chocolate manufacturers are in no way in the same position as ourselves, for although the statistical report of the world movement of cocoa compiled by

Messrs. Vasmer Ltd. of London shows that the stocks up to the end of 1922 were 738,000 bags short of 1920, and 618,000 bags short of 1921, and that the consumption had increased, the price of the raw material has fallen steadily until it reached below the cost of production, while the price of the manufactured article remains at the same high level of two years ago.

This is bewildering to the producer who is irresistibly forced to the conclusion that he is not receiving his fair share, and that until he also has a voice in fixing the price of his goods there can never be an even balance between himself and the purchaser. It is felt that the manufacturers have too great an advantage over him, as being grouped in large centres they have the facilities of combining, and have combined for a common policy, whereas the producers are scattered and have not the facilities of cooperating or coordinating for mutuality of action, and therefore feel that they are at the mercy of the manufacturers.

It cannot be justly denied that opportunities should be afforded for even moderate cooperation or coordination between producers who may be disposed to think that it would be equitable for prices to be fixed at the points of production to escape being at the mercy of those fixed at the centres of distribution. These are natural and legal aspirations that ought to be respected.

If we sought to antagonize the manufacturers we would be within our rights, but we mean nothing of the sort. The spirit of aloofness between the man who is engaged in making his fortune out of what another produces and the producer (hitherto and at present very manifest in the case of cocoa) must in the long run be as suicidal to the one as it is now destructive to the other. It would be more conducive to their mutual benefit if they approach each other.

In the largest consuming centre (the U.S.A.) it would be a serious offence in the eyes of the manufacturer were the producer to attempt to approach him

My Society sometime ago forwarded to the British Empire Producers' Organization a motion that "In view of the disparity between the prices paid to the producer of raw cocoa and the price paid by the consumer of the manufactured article which naturally restricts consumption and impedes the demand for the raw product, the British Empire Producers' Organization be asked to circularize the cocoa producers of the world to join in the movement for convoking a World Conference in England on the occasion of the coming Exhibition, to discuss the parlous condition of Cocoa, and to decide what (if any) united action should be taken to secure a fair return to the producers, and that this Society place at the disposal of the Organization such sum as may be deemed sufficient as a contribution towards the movement," which we are informed has been referred to the Empire Conference for October, with a view to obtain an increased preference, but though we are appreciative of efforts to increase the preference it is essential that there should be a meeting of producers at which the presence of manufacturers would be very helpful.

For these reasons the members of my Society collectively, and those who are members of The West India Committee, individually, beg to urge that your Committee take such steps as may best be calculated to bring about a conference of cocoa producers on the occasion of the coming Empire Exhibition in 1924, at which it may be made possible for all manufacturers (foreign as well) to attend, so that a better understanding may be ensured. This occasion is chosen as producers from all parts are likely to be present in England.

PRESIDENT.

“ After discussion it was referred by them to a Sub-committee, which decided to recommend the Committee to support the proposal for holding a World Conference of cocoa producers, which manufacturers might be invited to attend, on the occasion of the holding of the British Empire Exhibition next year.”

I have received several letters from the chiefs in Gold Coast, and from the Gold Coast Farmers, including the one published. In consequence of a suggestion in the letter of the Gold Coast Farmer' Association (confidential) touching certain remedial measures pending the conference I dispatched a cable to them, but owing to the extent of the country and the time it will take for all to meet for securing unanimity, I do not expect an early reply.

On the 10th November last our Secretary by the direction of the Managing Committee issued to cocoa producers of all known cocoa producing countries, with translations into the language of the different countries, the following Circular :—

“ Port-of-Spain, 8th November, 1923.

Trinidad, B. W. I.

To The President of

The Agricultural Society of

or of any other body representing Cocoa Producers.

Sir,

Owing to the parlous condition of the cocoa industry from the low prices that have for a long time prevailed, my Society has in contemplation a Conference of all producers to be held in England about the middle of 1924, for the purpose of discussing some means for ameliorating the position and ensuring the future stability of cocoa.

My Society, would therefore like to be informed at an early date, whether such a Conference would meet

with the views of the producers of your country, and if so, whether your Society would send a delegate or delegates to attend thereat.

On receiving a favourable reply, further correspondence as to any suggestions may be entered into."

A cable has been sent to the W.I.C. asking for the fixing of the date of the conference.

The Chamber of Commerce as you are aware is in accord with the movement. I may mention that I have written to the Gold Coast Chamber of Commerce.

I am in constant touch with the principal producing countries by cable and by letter, while I await the announcement of the opening date to issue my personal circular, and I look forward to your approbation of the steps taken by the Managing Committee.

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GENERAL MEETINGS.

Minutes of the General Meeting held in the Council Chamber on Thursday, 8th November at 1.30 p.m.

Present :—W. S. E. Barnardo, President in the Chair, H. Warner, Honorary Vice-President, Hon'ble A. B. Carr, Vice-President, Revd. H. H. Morton, Hon'ble W. G. Freeman, Director of Agriculture, Hon'ble Revd. C. D. Lalla, Messrs. G. C. Wyatt, C. Palmer-Chizzola, Jas. Mungal, S. Medford, A. A. Sobrian, C. P. Rojas, A. G. Hamlyn, Captain A. A. Cipriani, H. Gajadharsing, F. Le Blanc, C. M. Samlalsingh, K. Simpson, V. C. Stauble, E. Radcliffe Clarke, L. J. B. Luke, M. Martinez, A. V. Stollmeyer, J. Black, G. A. Jones, F. Clarke, Jas. Sween, Sir Francis Watts, and L. de Verteuil, Secretary.

Minutes:—The Minutes of the Meeting of 11th October, that had been circulated, were confirmed.

Election of New Members :—The following Members were elected by Ballot:

Sydney Liddelow, Sugar Planter; J. W. Catheart, Proprietor, Tobago; David H. Linder, Research Student, Harvard University, U.S.A.

Affiliation of Parent Society :—An application from the Leeward District Agricultural Society of Tobago, for affiliation to the Parent Society which had been considered by the Board of Management, was submitted to the General Meeting for approval. The application was granted.

Subscriptions :—The President called the attention of Members who are in arrears with their subscriptions for the current year and in some cases for two years—he trusted they would pay up before the end of the year.

Correspondence :—The Secretary read a telegram from London, dated 15th October, which informed the Society that the Imperial Government had almost entirely adopted the proposals for a greater measure of protection with regard to Government and public body contracts, Sugar., Dried Fruits, Canned Fruits, and Tobacco.

Letters were read from the Secretary of the West India Committee regarding the forthcoming visit of the Parliamentary Delegates to the Colony and with reference to the desirability of arranging a Conference with Cacao Manufacturers and Producers. Mr. Aspinall, Secretary of the W. I. Committee, expressed the desire to receive particulars of the programmes arranged in the Colonies to be visited, before the Delegation leaves England. A Committee has been appointed by the Governor to do this and it is presumed that all particulars will be forwarded as soon as possible.

With regard to arranging a Conference of Cacao Manufacturers and Producers, Mr. Aspinall stated that opinion on the subject appeared to be divided and that the matter was referred to a Sub-Committee for further consideration. An interesting fact brought to light was that Manufacturers in England use a substitute for butter to the extent of 1,000 tons a year. This and the fact that other adulterants are used point to the desirability of definitions of Cacao and Chocolate being

established on the lines of those adopted in South Australia—the matter will engage the immediate attention of the Sub-Committee. The letter also referred to samples of Chocolate prepared from pure Trinidad Cacao and pure Trinidad and Grenada Cacao which were considered to be infinitely better in point of flavour to the mawkish milk chocolate which is so largely advertised.

Hon'ble A. B. Carr moved: "That the Agricultural Society desire to thank the Secretary of the West India Committee for bringing to its notice the fact that a substitute for Cacao butter is being placed on the Home Market and to urge that steps be taken to bring this fact to the notice of the Home Government. Agreed to

Lantern Slides and Films :—The Secretary read a letter from the Secretary of the British Empire Producers' Organization, to thank the Society for the lantern slides and films which they had received from Major Rust.

Inter-Colonial Agricultural Conference in Jamaica :—The consideration of this matter had been postponed from last meeting and a further letter was read from the Hon'ble Colonial Secretary, stating that His Excellency the Governor regrets that he sees no possibility of a contribution being made from public funds to the expenses of any other delegates and that if the Agricultural Society decide to send a Delegate to the Conference the Society would have to arrange to do so without cost to the Colony.

It was decided that no Delegate would be sent to represent the Society.

The following provisional programme suggested by Sir Francis Watts for the West Indian Agricultural Conference in Jamaica was forwarded by the Hon'ble Colonial Secretary for the information of the Society.

Morning.	Afternoon.
January 29th Opening Ceremonies	Bananas & Cotton
„ 30th Cacao; Coconuts	Sugar
„ 31st Live Stock; Education	Closing Ceremonies

Lands & Buildings Taxes. :—The Chairman, said that Mr. C. P. Rojas had received information in consequence of which, he asked leave to withdraw the following question which stood in his name.

“If the interpretation of the Ordinance relating to Lands and Buildings Taxes No. 14 of 1920, viz : “that a building consisting of Barrack Rooms and Drying House, should be taxed as two separate buildings i.e. as a Barrack and as a Drying House, is correct.”

Mr. Jas. Mungal moved :

“That this Society appoint a Special Committee to draft a Memorandum on the Agricultural possibilities of the Island with a view to presenting it to the Parliamentary Delegation, on their visit to the Island in January next.”

Seconded by Mr G. C. Wyatt, and after Mr. H. Warner, Honorable A. B. Carr, Mr. E. Radcliffe Clarke and A. V. Stollmeyer, and Sir Francis Watts had spoken in favour of the resolution, the following Members were appointed a Committee to draft the Memorandum : Sir Francis Watts, H. Warner, A.V. Stollmeyer, Honorable W. G. Freeman, Jas. Mungal and E. Radcliffe Clarke.

At 3 p.m. the meeting adjourned.

L. DE VERTEUIL,
Secretary.

Confirmed.

W. S. E. BARNARDO,
President.

Minutes of the General Meeting held in the Council Chamber on Thursday, 13th December, 1923, at 1.30 p.m.

Present :—W. S. E. Barnardo, President, in the Chair, Hon'ble A. B. Carr, Vice-President, Hon'ble W. G. Freeman, Director of Agriculture, Sir F. Watts, K.C.M.G., Principle of the Imperial College of Tropical

Agriculture, Wm. Nowell, Assistant Director of Agriculture, Revd. H. H. Morton, Doctor F. Gibbon, Captain Gooden-Chisholm, Captain A. A. Cipriani, Messrs. E. Radcliffe Clarke, S. Medford, G. G. Brown, A. V. Stollmeyer, H. Gajadharsingh, F. Anduze, A. G. Hamlyn, A. J. Hamlyn, J. H. Dubé, Wm. Dickson, A. G. Bailey, G. C. Wyatt, C. Fleming, J. Lickfold, J. J. Halliday, J. Knox, K. Simpson, F. Le Blanc, F. W. Urich, Entomologist, F. Stell, Mycologist, J. L. Wilson-Goode, Trade Commissioner, Lieut.-Colonel Collens and L. de Verteuil, Secretary.

Minutes :—The Minutes of the Meeting of 8th November which had been circulated, were confirmed.

Correspondence :—The Secretary read a letter from the Colonial Secretary who forwarded a copy of a circular despatch received from the Secretary of State for the Colonies regarding the participation of the British Colonies and Protectorates in the Milan International Sample Fair. The views of the Society were requested as to whether or not sample exhibits from the Colony should be sent to the Fair. The Chairman invited suggestions. As it was entirely a commercial affair, he thought it might be referred to the British Empire Exhibition Committee.

On the motion of Hon'ble A. B. Carr, seconded by Revd. H. H. Morton, the matter was referred to the British Empire Exhibition Committee.

2. The Secretary read a passage from a letter from Mr. Peter Abel informing the Society of his decision to resign his seat as representative of the Society on the Council of the British Empire Producers' Organization and also a letter from the General Secretary of the British Empire Producers' Organization acquainting the Society of Mr. Abel's action and suggesting the appointment of Mr. Aucher Warner, K.C. in Mr. Abel's stead.

Hon'ble A. B. Carr moved that the resignation of Mr. Abel be accepted and that a vote of thanks be

accorded him for the valuable services he had been able to render to the Colony and to the Society. Seconded by Mr. J. Lickfold and carried unanimously.

Mr. E. Radcliffe Clarke moved that Mr. H. Hamel-Smith be nominated in the place of Mr. Abel and that Mr. Warner be alternate to Mr. Hamel-Smith. This was seconded by Captain Gooden-Chisholm.

Hon'ble A. B. Carr moved as an amendment that **Mr. A. Warner** be nominated in the stead of Mr. Abel, as he thought Mr. Warner would be able to devote more of his time to their interests, than Mr. Hamel-Smith could. Seconded by Mr. G. C. Wyatt.

On the amendment being put to the vote, it was lost and Mr. Radcliffe Clarke's motion was carried.

Reverend H. H. Morton then formally moved that Mr. A. Warner be asked to act as an alternate Member. Seconded by Mr. E. Radcliffe Clarke and carried unanimously.

Conference of Cacao Producers :—Mr. E. Radcliffe Clarke read a "resumé" of what had, so far, been done in connection with the convening of a World Conference of Cacao Producers in London next year, to discuss the parlous condition of the Cacao Industry so as to find means of ameliorating it. Members are requested to refer to Society Paper No. 801 in the Proceedings of December 1923 for details of the Paper.

The President said that the question of Cacao is a very serious one at the present time and the thanks of this Society are due very much to Mr. Radcliffe Clarke for all he has done. This Society has been working on this matter for a long time, various Committee Meetings have been held and a great many suggestions have been made. But it has rested to Mr. Clarke to put this suggestion of a Conference to something like a probability of its coming off. Mr. Clarke has done this entirely out of his own pocket, he has spent a lot of money on cables and in other expenses and he has done it all willingly and enthusiastically and he

really seems to have got the ball rolling now and there seems every prospect of there being this Conference in London next year. This Society owe him the greatest thanks and the greatest amount of appreciation possible for it to express. I ask you all to join in passing a hearty vote of thanks to Mr. Clarke for all he has done.

The vote of thanks was unanimously accorded and Mr. Clarke thanked the Members for their appreciation.

Coconut Diseases :—Mr. Wm. Nowell, Assistant Director of Agriculture, lectured on Coconut Diseases. He spoke for more than an hour and detailed the different diseases and the measures of treatment and prevention of infection. It was a most interesting lecture and replete with useful information for the guidance of Coconut Planters. Mr. Nowell has promised to give a summary of his lecture, which will be published in the Proceedings of the Society, as a Society Paper.

Doctor Gibbon asked whether the Palm Beetle was a source of infection? Mr. Nowell said there was no evidence to show that Beetles deserted diseased trees for healthy ones.

On the motion of the President, a hearty vote of thanks was unanimously given to Mr. Nowell.

Grant-in-aid :—Captain A. A. Cipriani applied for a donation towards a Goat and Poultry Show which is to be held at the Prince's Building on the 15th December. The President thought it was rather late in the day to ask for a grant-in-aid but promised to consider the matter when the next Committee Meeting is held.

At the close of the Meeting, 3.45 p.m., the said: As this is the last Meeting of the year, all a happy Christmas and a prosperous New Year. He also thank the Hon'ble Director of Agriculture and the officers of the Department for all the assistance

given us this year and for the excellent papers they have read and the way they have helped us in everything they could. We hope they will again do so next year.

L. DE VERTEUIL,

Secretary.

Confirmed.

W. S. E. BARNARDO,

President.

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REPORTS FROM DISTRICT AGRICULTURAL SOCIETIES.

NAPARIMA.

The regular monthly meeting of the Naparima District Agricultural Society was held at the Town Hall on 16th July, 1923, at 4.30 p.m. when there were present: Mr. J. C. Augustus, Vice-Chairman, in the Chair, W. W. Bonyun, (Hon. Treas.) A. A. Sobrian (Delegate) H. Stent, A. Dasent, R. M. Scott, J. Mungal, D. Chadee, B. Reynolds, Dr. W. Dottin, E. Doughlin, C. Sanowar, A. Gidharry, A. Lewis, H. Dee, Ramsamooj, A. E. Lakhan (Hon. Sec.).

Minutes :—The minutes of the last meeting were read and confirmed.

New Members :—Rev. J. U. Bell and Mr. C. Ashby were elected new members.

Nominations :—The following gentlemen were nominated :—

Mr. J. H. Gittens, proposed by Mr. Dee, seconded by Mr. Gordon; H. Winter, proposed by Mr. A. Dasent, seconded by Mr. Bonyun.

Delegate's Report :—Mr. Sobrian reported that the following took place at the last meeting of the Parent Society :

That members will in future be elected by ballott.

The report by the Director of Agriculture of the death of several head of cattle at the Queen's Park Savannah was confirmed.

A motion calling attention of the Secretary of State to the urgent need for an Agricultural Bank was brought forward.

The Chairman thanked the Delegate for his interesting report and said that he thought it very unfortunate that the discussion on the Agricultural Bank should be reopened, especially when His Excellency the Governor who was now in England was doing all he can to further its progress. Personally he thought that the erection of a central cocoa factory would be of greater usefulness.

Exhibits :—Mr. Sobrian exhibited a few samples of different grades of Cocoa which had been manufactured at his factory at Altigracia Estate.

Members complimented Mr. Sobrian on the excellence of the product and wished him success that his enterprise deserved.

Goat Club Abandoned :—Mr. Dascint moved that the Goat Club be wound up and the subscriptions be returned pro rata to the members. Mr. Augustus seconded and the motion was carried.

Congratulations :—Mr. Scott said that as the Director of Agriculture had just been appointed to a seat on the Legislative Council he thought that this Society should offer him the warmest congratulations. He was a friend of the Society and always took keen interest in its affairs.

The Chairman agreed and directed the Secretary to forward the congratulations of the Society to Mr. Freeman.

The meeting came to a close.

The regular monthly meeting of the Naparima District Agricultural Society was held at the Town Hall on Monday, 20th August at 4.30 p.m.

Those present were: Mr. J. C. Augustus, Vice-Chairman, Messrs. A. H. Dasent, H. Stent, T. Boodoosingh, (Agricultural Advisor) Dr. W. Dottin, H. Gobin, D. Chadee, E. Lewis, J. Wickham, H. Dee, R. M. Scott, T. Vilain, Rev. Canon W. S. Doorly, A. A. Sobrian, (Delegate) J. Mungal, J. Gittens, H. Winter, and A. E. Lakhan (Hon. Sec.)

Minutes :—The minutes of the last meeting were read and confirmed.

Nominations :—The following gentlemen were nominated as new members :—

Mr. Peter Kalloo proposed by Mr. Lakhan, seconded by Canon Doorly; Mr. L. Jaggernauth proposed by Chadee, seconded by Mr. Scott; Mr. R. L. Arneaud proposed by Mr. Dasent, seconded by Mr. Scott.

Adviser's Report :—Mr. T. Boodansingh said that the Coffee crop had made good progress. The cocoa crop was over and weather conditions were favourable.

Delegate's Report :—The chief matter at the last meeting of the Parent Society, said Mr. A. A. Sobrian, was the discussion about the proposed Agricultural Bank. The name of the Agricultural College was changed to that of the Imperial College of Tropical Agriculture. A letter from the British Empire Exhibition Committee, was read stating that a conference will be held at the Exhibition in 1924 and topics of interest will be discussed, subjects to be intimated later.

The Chairman thanked the Delegate for his report.

Next Meeting :—The Chairman announced that as a result of correspondence between himself and the acting Conservator of Forests, the latter had offered to demonstrate to the Society the work that was being done at the Quarry Plantations at Siparia.

The Secretary was directed to make arrangements for a bus party to go to Siparia and also to accept the offer of the Acting Conservator of Forests.

Secretary Resigns :—The Hon. Secretary forwarded a letter stating that owing to his having to take up duties at Cedros, he found it impossible to continue his work as Secretary. The resignation was accepted.

Mr. Scott thought that the appointment of a Secretary should be dealt with by the Executive Committee.

The meeting agreed to appoint Mr. Gordon to fill the vacancy.

The meeting then came to a close.

The regular monthly meeting of the Naparima District Agricultural Society was held on Saturday, 15th September, 1923 at the Quarry Plantations, Siparia. Those present were Messrs. J. C. Augustus, Vice-Chairman, W. W. Bonyun, (Treas.) A. A. Sobrian (Delegate) H. Stent, D. Chadee, H. Gobin, A. Dasent, K. Deonarine, A. Seebalack, L. Jaggernauth and H. Gordon (Hon. Sec.) The following visitors were also present: L. Mitchell and G. Taitt.

The Acting Conservator of Forests took the members through the plantations and lectured to them on the work that was being done and what they hoped to do in the future. This took the Society through the whole of the Plantations and many items of interest were observed.

When the members were reassembled at the Rest lodge, the meeting then began.

Minutes :—The reading of the minutes of the last meeting was postponed.

New Members :—Messrs. L. Jaggernauth and K. Deonarine were elected members.

Nominations :—The following gentlemen were nominated:—

Mr. G. Taitt, proposed by Mr. Dasent, seconded by Mr. Bonyun; S. A. Dillon, proposed by Mr. Bonyun, seconded by Mr. Dasent; L. E. Mitchell, proposed by Mr. Dasent, seconded by Mr. Gordon.

Death of a Member :—Mr. Dasent reminded the Society of the death of Rev. Canon R. V. Cantwell, who was one of the earliest members of the Society and one who in the earlier days took a lively interest in all its proceedings. He moved a vote of condolence. This was seconded by Mr. Bonyun who spoke in high terms of the member and regretted his demise.

Delegate's Report :—Mr. Sobrian said that the chief matters at the Parent Society was the announcement of the sanction of the Agricultural Bank; the letter from the Colonial Secretary forwarding the itinerary for the proposed visit of M.P.'s. The Parent Society was requested to forward a representative to the Reception Committee.

The Chairman thanked the Delegate for his report.

The Demonstration :—The Chairman thanked Mr. Marshall for taking them over the plantations and for all the interesting and instructive information he had given them. He said he felt sure that Members would go away amply repaid for their efforts in coming there that afternoon. There were always bad spots on estates and following Mr. Marshall's advice, he was sure that they would soon turn these spots in to remunerative timber plots which, though they might not be readily useful, will nevertheless add to the value of their estates.

Mr. Marshall thanked the Society for coming and said that he stood for a self supporting policy with regard to the timber industry in Trinidad. He wanted a great deal of support to bring that to pass but he felt sure that with Societies such as these giving him their support he was sure to arrive at this ideal very soon.

He again thanked the Society for their interest and hoped their coming together there that afternoon would be of good purpose.

A Presentation :—Mr. Dasent who was deputed to obtain a suitable gift for the retiring Secretary said he had fulfilled his mission and had brought along with him a travelling bag. He was sorry the Secretary was not there but he would hand over the gift to the present Secretary to be forwarded to Mr. Lakhan with the best thanks of the Society for the work he had done during his term as Secretary.

The meeting then came to a close.

At the regular meeting of the Naparima District Agricultural Society held at the Town Hall on Monday, 18th October, 1923 there were present: Mr. J. C. Augustus, Vice-Chairman in the Chair, Messrs. W. W. Bonyun (Treasurer) A. H. Dasent, Rev. C. G. Errey, J. Mungal, H. Stent, A. A. Sobrian, (Delegate) E. C. Doughlin, D. Gobin, H. Thornhill, A. Lakhan, L. Jagger-nauth, K. Deonarine, A. Ogeerally, S. A. Dillon, D. Chadee, H. Espinet, and H. Gordon, Honorary Secretary. The following visitors were also present: Mrs. R. C. Marshall and Mr. Achee.

Minutes :—The minutes of the two previous meetings were read and confirmed, on the motion of Mr. Dasent, seconded by Mr. Bonyun.

Delegate's Report :—Mr. A. A. Sobrian, the Society's Delegate, presented his report, in the course of which he mentioned that the meeting of the Parent Society was held at River Estate where many new departures were observed including: Ploughing experiments. They also saw experiments in Distance Planting, Selection experiments, Shade or No Shade experiments, Ringbarking and painting with chemicals, &c.

The Chairman thanked the Delegate for his interesting report and thought that the Society ought to pay a visit to River Estate in the near future.

Mr. Bonyun's Motion :—The Motion of which Mr. Bonyun had given notice was next moved. Mr. Bonyun said it was a pleasure to observe that Mr. Marshall had been appointed to the post of Conservator of Forests. He knew Mr. Marshall to be a very enthusiastic worker and one whose energy would carry him to great achievements. Mr. Marshall had shown them round the Forest Plantation at Siparia and judging from his keenness and the quality of the work he had seen he was sure Mr. Marshall was the right man in the right place and he had the greatest pleasure in congratulating Mr. Marshall on his appointment.

Mr. Dasent seconded the motion in most appropriate words, and the motion was carried unanimously.

The Chairman conveyed the congratulatory motion to the gentleman who thanked the Society.

Lecture on Forestry :—Mr. Marshall then delivered an interesting and instructive lecture on Forestry in the course of which he made reference to what were the ideals of his department as regards Forestry in Trinidad. They were out to make Trinidad self-supporting in regard to timber but they wanted the support of the inhabitants to succeed as they expected. He brought quite a number of samples of local woods and illustrated his lecture with drawings on the blackboard.

Rev. Errey moved a vote of thanks to the lecturer which was ably seconded by Mr. Sobrian and the meeting came to a close at 6.05 p.m.

FYZABAD.

The regular monthly meeting of the Fyzabad District Agricultural Society was held on Tuesday, 6th November at the Fyzabad school house at 4 p.m. There were present the following members: Messrs. C. Goberdhan,

J. Budhu, M. Brighlal Suttan, Ali, Mohamed, S. Mohamed, F. Bhola Balmakoon, C. Bissoon, Bhagratee, Mararaj Mungul, Hadai, K. Benjamin, Gangabsisoon, N. Gour, S. M. Harnarayan, Hon. Secretary and nine visitors. In the absence of both the Chairman and Vice-Chairman Mr. N. Goberdhan was appointed to act.

Minutes :—The minutes of the previous meeting were read and confirmed.

Nomination of Candidates :—Mr. S. Parag was proposed a member by Mr. K. Benjamin.

Correspondence :—A Memo from Mr. E. R. Clarke was read and considered. The Secretary was directed to write as follows: That this Society views with favour the idea of formulating any scheme to improve the condition of the cocoa industry in the colony.

Oil Ordinance :—Mr. F. Bhola moved that this society order a copy of the oil pollution water conservation Ordinance. Seconded by Mr. N. Gour and unanimously carried the Secretary was then instructed to order a copy and to read a part at each meeting.

Rice Disease :—Reference was made to a rice disease by Mr. Bhagratee Maraj, but as it was too late, the society thought it best to postpone same until next year's planting season, then the Department of Agriculture will be approached with a view to ascertain the nature of the disease and possible treatment, meanwhile members gave some valuable hints.

There being no further business the meeting terminated.

WINDWARD (ROXBOROUGH) TOBAGO.

Minutes of the monthly general meeting of the Windward District Agricultural Society held at the Roxborough Court House on the 9th October, 1923.

Members Present :—There were present the following:—J. B. Murray Esq., J.P., Deputy Chairman, presiding, Messrs. F. D. Davies (Agricultural Advisor) H.

Fraser, N. Holder, R. Douglas, N. McCony, W. Harper, A. Jones, (Vice-Chairman) and F. J. B. Murray Hon. Secretary.

Minutes :—The minutes of the last meeting were read and confirmed; moved by Mr. Fraser, seconded by Mr. Holder.

Arising out of the minutes was the question of the Resolution of this Society re Hospital. The Secretary read two letters, one from the Secretary, Mr. de Verteuil, and the other from Mr. Barnardo, President of the Parent Society. In these two letters were contained the suggestion that the people should approach the Government directly through the Warden as this matter was strictly beyond the scope of the Agricultural Society.

The Society unanimously agreed to adopt the suggestion of these two gentlemen and to let the matter down as being out of its scope.

Election :—The following gentlemen were unanimously elected to membership, viz, W: Jurawan and G. Begg.

Report of Committee :—The Secretary read a report on the working of the Committee preparing for the Bazaar. It was adopted.

Mr. Davies moved a hearty vote of thanks to the Committee for the work they were proceeding with and wished them success.

Lecture on Bananas:—Mr. Davies gave an interesting lecture on the Banana Industry. In the course of his lecture he encouraged the members to plant as much bananas as they possibly could as the time was coming when it would be a paying industry. In speaking about disease, Mr. Davies thought that Tobago was about the best place from which the neighbouring islands especially Trinidad, may get their plants, as the principal banana-disease appears to be extinct in Tobago.

The lecturer received the thanks of the meeting and after the Roll was taken the meeting was terminated with the singing of the National Anthem.

Minutes of the monthly general meeting of the Windward District Agricultural Society held at the Roxborough School Room on 13th November, 1923.

Members Present :—There were present: Rev. E. Pilgrim, B.A. Chairman, presiding; Messrs. J. B. Murray, J.P., Deputy Chairman, F. D. Davies, H. Fraser, N. Holder, C. Jack, A. M. Skinner, W. Jurawan, N. McCony and F. J. B. Henry Hon. Secretary.

Minutes :—The minutes of the last meeting were read. Their confirmation was moved by Mr. Davies, seconded by Mr. McCony and carried unanimously.

The Deputy Chairman was congratulated on the way he carried out the business of the Society during the absence of the Chairman.

Correspondence :—A letter from Mr. J. A. E. Thomson was read.

Election :—P. Peters was elected to membership.

Report :—The Report of the Committee as given by Mr. Murray was accepted.

Lecture :—The disease in Bananas was again dealt with. Mr. Fraser gave a good account of his experience in the field.

Mr. Davies gave valuable hints. Many questions were asked and were promptly answered by Mr. Davies.

The two gentlemen were thanked for the interesting discussion which tended to profit all present.

Fruits :—Mr. Davies encouraged all persons to do their best to ship fruits to the Depot in Port-of-Spain. He carefully explained the methods of picking and packing for transportation. He assured them that they could obtain crates at a reasonable rate from Port-of-Spain.

Greetings to Scarborough Society :—The Chairman moved that this Society sends greetings to the Scarborough Society and assure it of our co-operation. This was agreed to.

Mr. Davies said he was glad that another branch of the Society was operating in Tobago; and he hoped

that together, these two branches would be able to bring up the island to a higher standing in agricultural pursuits.

The Chairman moved that the Society approaches the Department of Agricultural asking for notification directly through the Hon. Secretary or through the Adviser, of the visits of the Department's experts to the island so that this Society may make it possible to arrange for a meeting when subjects affecting the interests of the island agriculturally might be discussed or perhaps a lecture given to the Society.

The meeting was in entire agreement with this.

The Roll Call and National Anthem brought the meeting to a close.

LEEWARD (SCARBOROUGH) TOBAGO.

A meeting of the Leeward District Agricultural Society was held at the Court House, Scarborough, on Friday afternoon, 30th November, 1923, at 4.15 o'clock. There were present: Messrs L. J. Sorzano (Magistrate-Warden), Chairman, T. Elton Miller, Vice-Chairman, W. F. O. Paul, Honorary Treasurer, T. H. Hendy, G. D. Hatt, T. M. Joseph and Captain R. J. Link, Members of the Committee of Management, Messrs. E. C. Sealy, F. D. Davies, Agricultural Adviser, F. Hutchinson, F. Samuel, W. Welch, J. A. Biggart, Honorary Secretary, and others.

Minutes :—The minutes of the meeting of the 5th October, and of the Special Meeting of the 30th October, were read and confirmed.

Correspondence :—A letter from the Parent Society was read that the application for affiliation was entertained (Cheers).

A letter from Mr. H. Meaden accompanied by fifty dollars being balance of the Tobago Exhibition Fund in the Royal Bank of Canada, Scarborough Branch, as a gift to the Society to be used for exhibition purposes was read. The Secretary was instructed to convey the

best thanks of the Officers and Members of the Society to Mr. Meaden for the gift.

A letter conveying greetings and congratulations from the Windward District Agricultural Society on the occasion of the affiliation of the Society to the Parent Society was next read.

Mr. F. D. Davies moved, seconded by Mr. G. D. Hatt, and carried unanimously, "That the affiliation fee of 10/- for 1924 be forwarded to the Parent Society."

Mr. T. Elton, Miller, Vice-Chairman, moved, and seconded by Mr. T. H. Hendy, and carried "That the Secretary be authorised to procure a Rubber stamp "with name of the Society for a sum not exceeding "10/-."

It was resolved "That a Savings account be opened in the Government Savings Bank, in the name of the Society by the Secretary and Treasurer respectively."

A paper on Pig Rearing was read by Captain Link, he said that the author of the Paper was Captain Metivier, and he thought the subject an interesting one for the people of Tobago generally. The Paper was listened to with rapt attention.

The Chairman said he was pleased to listen to the Paper, he agreed that the subject was an interesting one, and thought that a Committee be appointed to draw up a short and simple treatise on Pig Rearing for circulation amongst the members of the Society and other inhabitants of Tobago.

This suggestion was endorsed by the meeting and the Chairman appointed the following members to go into the matter: Messrs. E. C. Sealy, H. J. Kernahan, F. D. Davies and Captain Link.

The Secretary then moved a vote of thanks to Captain Link for the Paper, seconded by Mr. Hendy, and carried.

There being no further business the meeting terminated.

TRINIDAD.
MONTHLY PRODUCE REPORT AND STATISTICS.

COMPILED BY EDGAR TRIPP & Co.

Port-of-Spain, 30th November, 1923.

CACAO.—A better demand prevailed throughout the month, particularly for "Middling Red" quality which has been rather scarce. To-day's values are \$7.80 for above grade, and \$8.25 for Plantation.

The weather was too dry during the greater part of November and it is feared that the output for the next three months will be short. There is no likelihood of serious reaping operations beginning before January.

Reports received from the neighbouring Republic of Venezuela are not very satisfactory. Recent sales of this quality have been made at \$9.25.

SUGAR.—Sales are now confined to the local trade and are being made at 8½ cents for Yellow Crystals and 6½ cents for No. 3 Grocery.

Welcome showers have fallen lately and have been of great benefit to the present cultivation.

MOLASSES.—There is nothing to add to our report of 31st ultimo.

COCONUTS.—Fair shipments have been reported during the past month. The local market showed signs of improvement, opening at \$18.00 and \$10.00 for Selects and Culls respectively and closing at \$20.00 and \$10.00.

COPRA.—The market has been exceedingly active recently opening at \$4.70 per 100 lbs. and closing at \$5.10. Fair shipments continue to go forward to the United Kingdom and elsewhere.

ASPHALT.—Nothing to add to our last report.

CACAO.

Shipments of Trinidad Cacao During the Month of
November, 1923.

Destination.			Weight in lbs.
To all countries	..	..	1,599,275 ..
Shipped previously	..	..	62,969,037 ..
Total from 1st January ..			64,568,312 ..
To same date 1922	..	..	46,460,333 ..
„ „ 1921	..	..	72,977,265 ..
„ „ 1920	..	..	62,432,820 ..
„ „ 1919	..	..	57,737,543 ..
„ „ 1918	..	..	55,578,342 ..
„ „ 1917	..	..	68,229,372 ..
„ „ 1916	..	..	52,875,425 ..
„ „ 1915	..	..	45,869,353 ..
„ „ 1914	..	..	61,638,496 ..
„ „ 1913	..	..	46,431,247 ..
„ „ 1912	..	..	40,472,755 ..
„ „ 1911	..	..	43,496,702 ..
„ „ 1910	..	..	53,684,899 ..
„ „ 1909	..	..	45,480,098 ..
„ „ 1908	..	..	39,790,047 ..
„ „ 1907	..	..	35,062,616 ..

London Quotations for Ordinary:—

1st November per lb.	[one]	46/—
30th „ „ „	[one]	46/—

At same date 1922	..	..	67/—64/—
„ „ 1921	..	..	58/—57/—
„ „ 1920	..	..	80/—80/—
„ „ 1919	..	..	127/—131/—
„ „ 1918	..	..	90/—
„ „ 1917	..	..	95/—96/—
„ „ 1916	..	..	83/—80/—
„ „ 1915	..	..	90/—94/—
„ „ 1914	..	..	59/—65/—
„ „ 1913	..	..	68/—67/—
„ „ 1912	..	..	72/—
„ „ 1911	..	..	63/6—62/6
„ „ 1910	..	..	55/—
„ „ 1909	..	..	54/6
„ „ 1908	..	..	58/—62/—

New York Quotations :—

1st November per lb.	..	8½c.
6th „ „ „	..	8¼c.
10th „ „ „	..	8c.
20th „ „ „	..	7¾c.
29th „ „ „	..	7½c.
30th „ „ „	..	7½c.

At same date 1922	..	..	10¾c.—10¼c.
„ „ 1921	..	..	10c. —8c.
„ „ 1920	..	..	13½c.
„ „ 1919	..	..	24½c.—23⅓c.
„ „ 1918	..	..	12¾c.—14½c.
„ „ 1917	..	..	12¼c.—13c

SUGAR.

Shipped for the Month of November, 1923.

To all countries	..	..	86,564 „
Shipped previously	..	..	78,432,443 „
Total from 1st January ..			78,519,007 „

To same date 1922	..	..	115,114,928 lbs.
„ „ 1921	..	..	104,580,606 „
„ „ 1920	..	..	107,438,955 „
„ „ 1919	..	..	84,385,021 „

London Quotations for Demerara Crystals :—

1st November per cwt.	..	60/—65/—
10th „ „ „	..	62/—67/—
21st „ „ „	..	64/—67/—
29th „ „ „	..	66/—69/—
30th „ „ „	..	66/—69/—

At same date 1922	..	..	42/—45/6
„ „ 1921	..	..	38/—42/—
„ „ 1920	..	..	90/—76/—
„ „ 1919	..	..	57/9—97/—
„ „ 1918	..	..	57/9
„ „ 1917	..	..	46/9
„ „ 1916	..	..	40/1½—43/1½
„ „ 1915	..	..	28/9—30/6
„ „ 1914	..	..	28/—28/6
„ „ 1913	..	..	14/—14/6
„ „ 1912	..	..	19/9—21/9
„ „ 1911	..	..	14/6—16/9
„ „ 1910	..	..	15/3—17/6
„ „ 1909	..	..	16/3—14/9

New York Quotations, Crystals :—

1st November per 100 lbs.	...	7.66
3rd „ „ „ „	...	7.29
6th „ „ „ „	...	7.28
10th „ „ „ „	...	6.91
15th „ „ „ „	...	7.21
17th „ „ „ „	...	7.28
29th „ „ „ „	...	7.53
30th „ „ „ „	...	7.53

At same date 1922	..	10-0	5.56—5.65
" " 1921	..	10-0	4.00—3.87
" " 1920	..	..	8.26—5.76
" " 1919	..	..	7.28 Spot.
" " 1918	..	..	No Quotations
" " 1917	..	..	6.90

MOLASSES.

Shipped for the Month of November, 1923.

To all countries	..	..	19,920 gals.
Shipped previously	..	..	105,449 „
			<hr/>
Total from 1st January	..	..	125,369 „
To same date 1922	..	..	167,781 „
" " 1921	..	..	60,729 „
" " 1920	..	..	559,505 „
" " 1919	..	..	310,793 „

RUM.

Shipped for the Month of November, 1923.

To all countries	..	..	39 „
Shipped previously	..	..	23,702 „
			<hr/>
Total from 1st January	..	..	23,741 „
At same date 1922	..	..	23,108 „
" " 1921	..	..	162,157 „
" " 1920	..	..	50,306 „
" " 1919	..	..	158,746 „

COCONUTS.

Shipped for the Month of November, 1923.

To all countries	..	..	913,925 „
Shipped previously	..	..	10,651,455 „
			<hr/>
Total from 1st January	..	..	11,565,380 „

To same date 1922	..	..	17,633,681	nuts
" " 1921	..	..	20,230,396	"
" " 1920	..	..	21,062,684	"
" " 1919	..	..	27,134,149	"
" " 1918	..	..	19,680,780	"
" " 1917	..	..	15,475,222	"
" " 1916	..	..	15,353,889	"
" " 1915	..	..	13,001,164	"
" " 1914	..	..	14,221,297	"
" " 1913	..	..	14,119,112	"
" " 1912	..	..	15,115,923	"

COPRA.

Shipped for the Month of November, 1923.

To all countries	868,570	lbs.
Shipped previously	10,403,605	"

Total from 1st January	11,272,175	"
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To same date 1922	8,668,872	"
" " 1921	4,163,103	"
" " 1920	2,047,030	"
" " 1919	1,671,346	"
" " 1918	4,615,906	"
" " 1917	..	..	6,613,132	"
" " 1916	..	..	2,747,682	"
" " 1915	..	..	3,648,321	"
" " 1914	..	..	2,100,934	"
" " 1913	..	..	1,080,886	"
" " 1912	..	..	2,902,982	"

ASPHALT.

Shipped for the Month of November, 1923.

To all countries	6,675	tons
Shipped previously	149,872	"

Total from 1st January	156,547	"
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To same date 1922	131,783 tons
„ „ 1921	88,819 „
„ „ 1920	95,554 „
„ „ 1919	59,980 „
„ „ 1918	53,854 „
„ „ 1917	95,546 „

OIL.

Shipped for the Month of November, 1923.

To all countries	7,026,457 gals.
Shipped previously	73,100,561 „

Total from 1st January	80,126,998 „
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To same date 1922	45,917,904 „
„ „ 1921	36,708,804 „
„ „ 1920	30,508,393 „
„ „ 1919	37,084,278 „
„ „ 1918	42,179,959 „
„ „ 1917	..	..	30,854,670 „

Port-of-Spain, 31st December, 1923.

CACAO.—Owing to heavy and continuous rains during the month, drying of cacao has been interfered with considerably, and in consequence, quite a large percentage of the receipts have been very dark, and in many instances quite black.

During the earlier part of the month there was a very keen demand from Europe which caused prices to advance considerably, “Plantation” grades fetching as high as \$9.75 per fanega. Recently, however, enquiries from Europe have fallen off, and therefore values here have declined. To-day’s quotations are \$9.30 and \$8.80 for “Plantation” and Middling Red” respectively.

Venezuelan cacao has been coming forward in very limited quantities, but heavy receipts are expected during

February and March. The latest sales of this grade were made at \$9.75 but the market is weak with a downward tendency.

FOREIGN CACAO.—In our report of June last it was erroneously stated that 3,311,586 lbs. were exported for the quarter April/June. The actual amount was only 1,713,082 lbs., and the difference, 1,598,504 lbs. has been deducted from the amount of the total exports to date.

SUGAR.—The market is rather quiet at present, the only shipments going forward being in completion of previous contracts.

As reported in our last the canes are doing well.

Operations will soon be commenced in many of the factories, and it is expected that the crop will be larger than that of last year.

MOLASSES.—There is nothing to add to our last report.

COCONUTS.—Planters are holding for better prices and in consequence the local market was rather dull throughout the month. The few lots offering realised \$20.00 and \$12.00 for Selects and Culls respectively.

COPRA.—Business was exceedingly bright during the past month, as much as 1,947,300 lbs. being exported. Local buyers are reported to have paid as much as \$5.60 per 100 lbs., but towards the close of the month values eased off to \$5.30.

ASPHALT AND OIL.—Figures for the year show a considerable increase over shipments for any year since 1917.

CACAO.

**Shipments of Trinidad Cacao During the Month of
December, 1923.**

Destination.		Weight in lbs.
To all countries	.. ..	3,123,963 ..
Shipped previously	.. ..	64,568,312 ..
		<hr/>
Total from 1st January	.. ..	67,692,275 ..
		<hr/>
To same date 1922	.. ..	50,437,635 ..
„ „ 1921	.. ..	75,729,640 ..
„ „ 1920	.. ..	62,708,672 ..
„ „ 1919	.. ..	60,743,283 ..
„ „ 1918	.. ..	58,638,572 ..
„ „ 1917	.. ..	70,144,898 ..
„ „ 1916	.. ..	54,884,480 ..
„ „ 1915	.. ..	54,061,450 ..
„ „ 1914	.. ..	63,447,876 ..
„ „ 1913	.. ..	48,116,377 ..
„ „ 1912	.. ..	41,625,625 ..
„ „ 1911	.. ..	46,790,353 ..
„ „ 1910	.. ..	57,839,074 ..
„ „ 1909	.. ..	51,575,071 ..
„ „ 1908	.. ..	47,632,438 ..
„ „ 1907	.. ..	41,038,204 ..

London Quotations for Ordinary:—

1st December per cwt.	.. ..	46/—
21st „ „ „	.. ..	48/—
31st „ „ „	.. ..	48/—
		<hr/>
At same date 1922	.. ..	62/—64/—
„ „ 1921	.. ..	54/—57/—
„ „ 1920	.. ..	80/—75/—
„ „ 1919	.. ..	129/—130/—
„ „ 1918	.. ..	90//
„ „ 1917	.. ..	96/—97/—

To same date	1916	..	..	80/—76/—
"	"	1915	..	94/—
"	"	1914	..	65/—75/—
"	"	1913	..	67/—66/—
"	"	1912	..	72/—71/—
"	"	1911	..	62/—66/—
"	"	1910	..	55/—56/6
"	"	1909	..	54/6
"	"	1908	..	61/—

New York Quotations :—

1st December per lb.	..	7½c.
11th	"	7¾c.
14th	"	8c.
21st	"	8½c.
28th	"	8¾c.
31st	"	8¾c.

At same date	1922	..	..	10¼c.—10¾c.
"	"	1921	..	8c.
"	"	1920	..	13½c.—11½c.
"	"	1919	..	22⅓c.—20c.
"	"	1918	..	14c. —16½c.
"	"	1917	..	12¼c.—13c.

Foreign Cacao Shipped for the Quarter ended
31st December, 1923.

To all Countries	..	..	815,684 lbs.
Shipped previously	..	..	7,166,596 „
Total from 1st January	..		7,982,280 „
Less error in quarter April/June			1,598,504 „
			6,383,776 „

To same date 1922	..	..	6,133,911 lbs.
„ „ 1921	..	..	8,253,911 „
„ „ 1920	..	..	7,495,254 „
„ „ 1919	..	..	8,799,262 „

SUGAR.

Shipped for the Month of December, 1923.

To all countries	1,052,533 „
Shipped previously	78,519,007 „

Total from 1st January	79,571,540 „
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To same date 1922	115,912,997 „
„ „ 1921	104,597,179 „
„ „ 1920	107,446,872 „
„ „ 1919	84,684,745 „
„ „ 1918	..	..	78,633,715 „

London Quotations for Demerara Crystals:—

1st December per cwt.	..	66/—69/—
13th „ „ „	..	67/—70/—
31st „ „ „	..	67/—70/—

At same date 1922	..	..	43/— —46/—
„ „ 1921	..	..	38/— —41/—
„ „ 1920	..	..	124/9
„ „ 1919	..	..	67/— —91/—
„ „ 1918	..	..	57/9
„ „ 1917	..	..	46/9
„ „ 1916	..	..	40/1½ —43/1½
„ „ 1915	..	..	29/— —30/9
„ „ 1914	..	..	26/9 —28/—
„ „ 1913	..	..	14/— —14/6
„ „ 1912	..	..	19/7 —18/6
„ „ 1911	..	..	21/9 —19/—
„ „ 1910	..	..	14/6 —16/—
„ „ 1909	..	..	17/6 —16/—
„ „ 1908	..	..	15/6 —14/6

New York Quotations, Crystals:—

1st December per 100 lbs.	..	7.78
11th	" " "	7.33
13th	" " " "	7.21
18th	" " " "	7.46
19th	" " " "	7.38
28th	" " " "	7.28
31st	" " " "	7.28

At same date 1922	..	5.78
" " 1921	..	3.87—3.39
" " 1920	..	5.76—5.39
" " 1919	..	7.28 Spot
" " 1918	..	No Quotations
" " 1917	..	6.90—5.92

MOLASSES.

Shipped for the Month of December, 1923.

To all countries	..	3,066 gals.
Shipped previously	..	125,369 "
Total from 1st January	..	128,435 "
To same date 1922	..	197,619 "
" " 1921	..	60,729 "
" " 1920	..	559,505 "
" " 1919	..	363,089 "
" " 1918	..	897,168 "

RUM.

Shipped for the Month of December, 1923.

To all countries	..	35 "
Shipped previously	..	23,741 "
Total from 1st January	..	23,776 "

At same date 1922	..	..	23,108 gals.
" " 1921	..	..	162,423 "
" " 1920	..	..	54,870 "
" " 1919	..	..	162,830 "
" " 1918	..	..	145,038 "

COCONUTS.

Shipped for the Month of December, 1923.

To all countries	662,135 nuts.
Shipped previously	11,565,380 "

Total from 1st January	12,227,515 "
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To same date 1922	18,645,986 "
" " 1921	20,893,871 "
" " 1920	21,974,204 "
" " 1919	30,900,424 "
" " 1918	22,210,385 "
" " 1917	..	..	16,595,262 "
" " 1916	..	..	17,705,433 "
" " 1915	..	..	14,528,118 "
" " 1914	..	..	15,571,407 "
" " 1913	..	..	16,390,897 "
" " 1912	..	..	16,305,039 "

Foreign Coconuts Shipped for the Quarter ended
31st December, 1923.

To all Countries	..	..	2,247 "
Shipped previously	..	..	90,578 "

Total from 1st January	..	..	92,825 "
To same date 1922	..	..	53,375 "
" " 1921	..	..	1,392,250 "
" " 1920	..	..	2,545,230 "
" " 1919	..	..	2,057,588 "

COPRA.

Shipped for the Month of December, 1923.

To all countries	..	..	1,947,300 lbs.
Shipped previously	..	..	11,272,175 "
<hr/>			
Total from 1st January	..	..	13,219,475 "

To same date 1922	..	..	9,428,843 "
" " 1921	..	..	4,163,103 "
" " 1920	..	..	2,234,570 "
" " 1919	..	..	1,795,033 "
" " 1918	..	..	5,231,991 "
" " 1917	..	..	7,201,446 "
" " 1916	..	..	3,075,558 "
" " 1915	..	..	3,986,731 "
" " 1914	..	..	2,358,154 "
" " 1913	..	..	1,175,834 "
" " 1912	..	..	3,160,210 "

ASPHALT.

Shipped for the Month of December, 1923.

To all countries	11,713 tons
Shipped previously	156,547 "
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Total from 1st January	168,260 "

To same date 1922	129,441 "
" " 1921	93,318 "
" " 1920	119,981 "
" " 1919	..	..	66,742 "
" " 1918	..	..	56,923 "
" " 1917	..	..	107,161 "

TRINIDAD CACAO.

MONTHLY SHIPMENTS AND OPENING AND CLOSING LONDON MARKET PRICES FROM JANUARY, 1909 TO 31ST DECEMBER, 1923.

(SOCIETY PAPER No. 603.)

(Compiled by Edgar Topp & Co.)

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
Quantity	Prices	Quantity	Prices	Quantity	Prices	Quantity	Prices	Quantity	Prices	Quantity	Prices	Quantity	Prices	Quantity	Prices
January	.. 5,114 6/- 30/-	9,389,702 54 6 50/-	5,243,811 50 6 6/-	10,757,000 62/- 61/-	9,581,755 71/- 60/-	8,151,885 66/- 62/-	7,406,433 75/- 60/-	5,085,123 94/- 90/-	6,900,700 70/- 78/-	1,802,200 97/-	8,129,981 90/-	11,370,654 128/- 130/-	1,834,187 75/- 67/-	5,118,592 54/- 57/-	7,265,000 62/- 60/-
February	.. 6,289,202 50/- 50/-	6,337,382 56/- 50/-	5,002,000 61/- 55/-	5,200,907 61/- 57/-	5,153,499 60/- 73/-	8,202,041 62/- 63/-	8,484,051 60/- 51/-	8,533,679 80/- 87/-	5,762,000 75/- 82/-	5,512,500 97/-	3,993,637 90/-	10,957,734 128/- 138/-	5,025,214 68/- 66/-	7,875,276 55/- 57/-	10,601,941 60/- 53/-
March	.. 6,653,604 50 6 60/-	5,400,351 50/- 50/-	4,404,207 55/- 57/-	5,440,233 57/- 53/-	7,433,203 73/- 73/-	12,229,800 62/- 61/-	8,532,529 51/- 60/-	6,103,768 90/-	15,840,000 86/- 57/-	9,545,101 97/- 94/-	1,765,086 90/-	8,476,192 137/- 147/-	11,811,394 66/- 60/-	5,283,423 69/- 70/-	15,797,284 50/- 53/-
April	.. 1,462,440 80/- 85/-	4,127,454 50 6 50/-	6,534,983 57/- 56/-	6,293,709 50 6 50/-	7,443,906 71/-	11,601,015 62/- 57/-	6,730,137 90/- 90/-	7,307,287 90/- 80/-	12,511,000 57/-	8,300,408 92/- 90/-	11,604,946 90/-	8,476,192 137/- 147/-	12,484,442 62/- 60/-	5,722,524 69/- 70/-	7,073,500 62/- 50/-
May	.. 4,571,101 85/- 57 6	7,000,900 56/- 55/-	6,185,703 50/- 50/-	2,404,200 50/- 64/-	4,008,047 71/- 70/-	8,429,004 67/- 50/-	4,840,034 90/- 88/-	5,071,680 80/- 87/-	6,652,133 84/- 85/-	5,088,404 80/-	6,370,982 90/- 121/-	4,938,133 144/- 157/-	10,144,011 60/- 60/-	5,217,569 68/- 70/-	7,909,618 64/- 54/-
June	.. 4,587,541 87 6 50 6	6,700,704 55/-	5,215,414 50/- 57/-	2,357,935 64/- 60/-	1,002,900 70/- 75/-	4,555,122 69/- 65/-	3,111,700 70/- 82/-	5,253,219 57/- 84/-	4,419,101 85/- 80/-	6,549,394 90/-	7,441,005 124/- 127/-	3,020,651 135/- 120/-	6,078,254 60/- 60/-	6,406,718 67/- 70/-	6,410,776 62/- 54/-
July	.. 8,377,433 55 6 54/-	8,748,780 50/-	3,550,511 57/- 53/-	1,915,607 60/- 72/-	1,004,071 70/- 74/-	2,292,800 67/- 68/-	3,111,700 70/- 82/-	5,253,219 57/- 84/-	4,419,101 85/- 80/-	4,941,680 90/-	7,441,005 124/- 127/-	4,011,437 120/- 105/-	6,008,087 57/- 55/-	4,315,622 67/- 70/-	4,013,221 54/- 40/-
August	.. 2,137,006 84/- 60/-	8,028,075 60/- 54/-	1,584,497 54/- 61/-	574,500 74/-	5,501,576 71/-	1,111,650 61/-	670,600 82/- 70/-	3,990,108 84/- 82/-	1,590,008 65/- 87/-	2,202,207 90/-	7,441,005 124/- 127/-	4,216,515 105/- 48/-	5,328,777 50/-	2,641,001 68/- 60/-	3,207,100 67/- 40/-
September	.. 80,346 50/- 54 6	1,717,718 54 6 50/-	860,553 62/- 61/-	771,742 74/-	1,119,775 71/-	302,400 60/-	2,023,718 81/- 81/-	1,651,007 57/- 50/-	1,554,246 50/- 50/-	5,084,244 90/-	1,051,123 121 6 127 6	5,684,075 64/- 86/-	3,385,580 59/-	1,003,286 63/- 61/-	1,000,250 47/- 50/-
October	.. 406,542 54 6	1,577,053 50/-	604,203 61/- 60 6	1,070,231 72/-	804,203 71/- 60/-	619,415 60/- 54/-	2,111,810 84/- 57/-	317,435 63/-	1,510,561 67/- 65/-	3,579,605 90/-	609,285 120/- 130/-	604,659 80/-	2,100,268 55/-	3,492,208 64/- 67/-	1,000,250 47/- 40/-
November	.. 1,115,711 54 6	4,202,101 50/-	1,604,251 61 6 60 6	323,700 71/-	4,030,705 60/- 57/-	672,439 60/- 60/-	611,200 80/- 91/-	2,250,488 87/- 80/-	1,500,000 67/- 50/-	2,204,200 90/-	520,144 130/- 110/-	604,659 80/-	3,241,201 59/- 57/-	4,008,208 67/- 60/-	1,000,250 47/- 40/-
December	.. 1,006,611 54 6	4,181,176 62/- 60 6	1,520,601 60 6 60 6	1,152,570 73/- 71/-	1,651,100 60/- 70/-	4,000,000 60/- 71/-	5,186,400 94/-	4,000,000 90/- 70/-	675,000 60/- 70/-	3,400,270 90/-	1,000,130 124/- 110/-	775,629 75/-	2,102,475 55/-	4,007,400 60/- 60/-	1,000,250 47/- 40/-
Total	.. 61,305,011	87,000,000	55,000,000	62,000,000	62,100,000	61,300,000	44,000,000	64,500,000	70,100,000	65,000,000	60,700,000	60,700,000	55,000,000	50,000,000	67,000,000

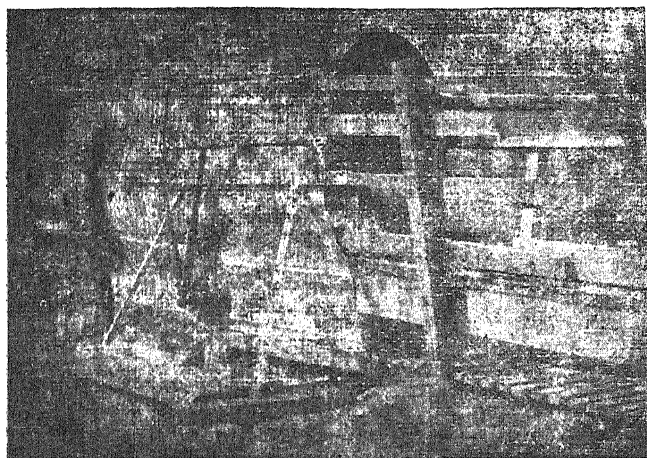
OIL.

Shipped for the Month of December, 1923.

To all Countries	..	..	5,241,555 gals.
Shipped previously	..	..	80,126,998 „
<hr/>			
Total from 1st January	..	..	83,368,553 „
To same date 1922	..	..	48,291,870 „
„ „ 1921	39,315,828 „
„ „ 1920	32,526,524 „
„ „ 1919	46,017,819 „
„ „ 1918	41,132,837 „
„ „ 1917	35,805,505 „



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AGENTS:

T. GEDDES GRANT, LIMITED.

Rainfall for November 1923.

Day of Month	LEWISVILLE, SAN FERNANDO		EL RECUERDO, MANZANILLA		ERIN		KING'S BAY TOBAGO.	
	Inches	Parts	Inches	Parts	Inches	Parts	Inches	Parts.
1	04	...	...	...	09
2	17
3	03	...	...
4	1	65	...	24	...	...	...	...
5	2	00	...	...	...	...	...	33
6	22	...	...	...	10
7	...	03	...	12	...	...	...	18
8	2	...	16
9	30	...	...	...	...
10
11
12
13
14
15	04	...	...	...	24
16	...	04	...	...	...	47	...	43
17	2	17	...	63	...	40	1	59
18	1	05	...	...	...	12
19	...	03	...	14	...	18	...	...
20	...	18	...	...	...	30	...	62
21	05	...	08	...	41
22	...	28	...	...	...	39	...	02
23	...	25	...	66	...	44	...	16
24	...	20	...	66	...	65	...	08
25	1	07	...	...	...	...
26
27	06	...	...	...	02
28	...	10	...	...	1	08	...	...
29	09	...	...	...	...
30	06
31
TOTAL	6	93	5	37	4	04	4	78

Note—		November.	1922	..	..	..	5	.81
"	"		1921	..	..	..	10	.70
"	"		1920	..	..	..	9	.99
"	"		1919	..	..	..	8	.36
"	"		1918	..	..	..	8	.09
"	"		1917	..	..	..	7	.25
"	"		1916	..	..	..	6	.15
"	"		1915	..	..	..	7	.21
"	"		1914	..	..	..	5	.13
"	"		1913	..	..	..	10	.19
Years—Total			1922	(at Lewisville)	..	..	81	.16
"	"		1921	..	..	..	78	.79
"	"		1920	..	..	..	59	.07
"	"		1919	..	..	..	60	.19
"	"		1918	..	..	..	70	.53
"	"		1917	..	..	..	78	.64
"	"		1916	..	..	..	69	.41
"	"		1915	..	..	..	70	.57
"	"		1914	..	..	..	54	.33
"	"		1913	..	..	..	65	.39

Rainfall for December, 1923.

Day of Month.	LEWISVILLE, SAN FERNANDO.		EL RECUERDO, MANZANILLA.		ERIN.		KING'S BAY TOBAGO.	
	Inches	Parts.	Inches	Parts.	Inches	Parts.	Inches	Parts
1	...	82	..	05	...	..	..	...
2	...	55	...	05	...	...	...	...
3	...	15	...	01	...	10	4	11
4	...	12	...	88	...	06	...	04
5	...	75	..	17	...	20	...	04
6	...	05	...	73	...	30	..	82
7	...	34	..	86	...	38	1	02
8	...	5	...	14	...	45	...	26
9	32	...	90	...	10
10	16	...	80	..	01
11
12	...	15	...	13	...	15	...	22
13	...	37	...	21	1	45	2	82
14	...	08	..	96	...	08	..	16
15	...	60	...	19	...	18	...	19
16	...	51	...	30	..	..	...	15
17	...	10	...	...	...	33	...	36
18	...	18	...	04	..	...	...	04
19
20	50	...	01
21	...	62	...	76	...	85	...	52
22	...	09	2	92	..	15	...	...
23	..	17	..	59	..	10	1	29
24	...	58	...	50	...	03	...	23
25	2	55	...	63	1	05	4	35
26	...	09	...	75	...	10	...	...
27	10	...	19	...	14
28	63	...	...	...	...
29	...	15	...	..	...	11	...	02
30	...	64	...	19	...	73	...	...
31	1	75	...	...	...	...
TOTAL.	10	01	13	37	9	25	16	90
Note—August,			1922	...	...	...	8	.09
"			1921	..	...	...	8	.58
"			1920	...	...	...	5	.14
"			1919	..	...	...	6	.04
"			1918	..	...	...	6	.12
"			1917	...	...	...	7	.11
"			1916	...	...	...	2	.15
"			1915	...	...	...	5	.06
"			1914	...	...	...	8	.24
"			1913	...	...	...	5	.00
"			1912	..	...	..	7	.14
Years—Total			1922	(at Lewisville)	...	...	81	.16
"			1921	...	...	...	78	.79
"			1920	59	.07
"			1919	60	.19
"			1918	70	.58
"			1917	78	.64
"			1916	69	.41
"			1915	70	.57
"			1914	54	.85
"			1913	65	.36

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